Houses and interiors Report

Sismile project
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0. Introduction

In all the countries that take part in the project, some changes have been detected in the housing evolution after the Second World War.

This evolution has gone from unique houses to buildings on floors, with flats of different size, depending on the level of purchasing power, finding great variety depending on the typology of users, based on their level of purchasing power, which also affects the type of furniture, from the point of view of style, design and quality of the used materials used.

These buildings are characterized by distinct rooms, bedrooms, bathrooms, kitchens, living rooms, dining rooms... Nowadays, in this type of housing, it is being generated an evolution towards more open spaces which share activities, mainly kitchens with living rooms and dining rooms.

Another type of buildings to be highlighted is the single-family houses with(out) gardens, which can be of one or more storeys, which in recent years has experienced a very high growth.

In each of the participating countries, it has been detected a trend towards homogeneity in the type of used furniture.

In the old days, in each of the participating countries, the type of used furniture, as well as the decoration of the interior of the houses, depended very much on cultural and religious aspects, observing a great difference in each of the participating countries. However, at the moment, we find ourselves in a fully globalized world, and it has been observed a homogenization in the typology of used furniture.

It should be pointed out that the built-in cabinet has replaced the non-structural wardrobe in the houses; it has even been replaced by closets, having a transformation from a non-structural element to a structural one.

In the same way, the decorations with religious images and objects tend to disappear.

Nevertheless, we can currently find multipurpose furniture, which have a different use depending on the need in every moment.

Finally, it should be pointed out that the concept of the family has changed, what makes that the needs of the type of house evolve with this concept. For example, the interior decoration type depends on the type of dwelling family, influencing the type of furniture and of the non-structural elements that can compose them.

All these elements should be taken into account, because they will affect the results of the hazard after an earthquake.
1. General evolution of houses and interiors in the different countries analyzed.

BELGIUM:

Houses in Belgium

In Belgium, according to the CIA world facts book 97% of the population lives in an urbanized region. That being said, only around 20% of the population lives in flats or apartments. The rest lives more or less equally divided in detached or semi-detached houses. Belgium is ranked second (excl. microstates) in human population density in Europe with 350 inhabitants per square kilometer, and everybody wants his own piece of land to build on. “A Belgian is born with a brick in his stomach” is a saying often used. However, since Belgium is divided in several governments, determined by language (Dutch, French and German) and jurisdiction, the Belgian landscape is mainly molded by varying political authority, federal, by community, by region, by province, by local authority, with a complete absence of a joint policy or vision, This is how Belgium became one big suburban patchwork by scattering the nostalgia of the garden city, in the shape of the allotment. For a long time until the middle of last century, the most prominent building done was line building of semi-detached houses along the roads. In a later phase this changed to detached houses, often in imitation farm style called ‘fermette’. In the past 20 years gradually a more modern architectural style has become popular. There are very few high rise apartment buildings around the city centers such as exist in many other European countries.

Source: Eurostat (online data code: ilo_brho01)
In Belgium, some 25% of the population is not the owner of his dwelling but is rather a tenant. Around 40% of the tenants live in rent controlled buildings (apartment) mostly constructed by local government. The other tenants pay market prices. Of the owners, around half still carry a mortgage, the others own their houses or apartments free and clear. The rental houses have to fulfill various requirements emitted by the authorities and there are no houses that do not have the basic provision such as sanitary, electricity and heating. Basically all houses have cable and landline telephone access. The only overcrowding that has been found in the past years concerned illegal immigrants over occupying apartments with or without the owners’ knowledge. Tenure status is an important element in the willingness or capability of the occupants to improve the safety elements of the house.

Tenure status in the EU

The Interior

To some extent, the interior of the dwellings depends on the type of dwelling. Apartments obviously have a more limited surface than detached houses and this is reflected in the interior. In Belgium, apartments come as flats (with one small space for living and sleeping), or one-, two- or three-or seldom even more bedroom apartments. Most apartments were built in the second half of the 20th century. In cities such as Brussels there are also apartments in converted old so-called bourgeois houses that were made into several apartments of one or more rooms. Only a small number of – mostly luxury – apartments so called duplexes extend over more than one floor. The typical more recent apartment will contain an
entrance hall leading to several doors. One will lead to the living/dining room, another to the kitchen, whilst one or two other will lead to bedrooms and bathrooms. Nowadays new apartments will most often have as many bathrooms as there are bedrooms. The size of the apartment goes from 40-50 square meters for a flat to 150 square meters to a three bedroom apartment. Very often, in the case of luxury apartments one of the bedrooms will actually serve as office or den. More recently a lot of open plan apartments were constructed including the kitchen in the dining area and living room. The fashionable conversion of industrial lofts into living spaces has also contributed to this trend. Most apartments will also have some kind of balcony.

Conversion of a small industrial space into a one place living unit including kitchen, living, sleeping and eating area
As a dwelling, detached or semi-detached houses mostly differ from apartments in the size and in the fact that they cover several floors. They also often will be under cellared and will have a garage. On average they will have three or more bedrooms, larger living rooms, dining rooms, offices, dens libraries, in short more rooms that can be dedicated to different purposes. They have their own garden.

Typical Fermette Plan
Styles

Style wise, for practical purposes we could distinguish two major styles: modern/minimalist and various trends styles going from classical to ethnic, romantic etc. Modern or more minimalist can be found both at the top end of the market with the very expensive high end design of mainly Italian and Germans, but also in the lower end of the market where IKEA has made copies available of most modern design furniture for starters. Style and trends furniture is mostly situated in the middle to high end of the market.

Contemporary style living rooms
Characteristics of most of the furnishings styles today are lots of texture, mixing of antique furniture, slipcovers and loose fabrics and a lot of burnished metals and natural materials such as wood. In as much as it exists, Belgian style decorating is all about restrained elegance. It combines rustic elements with a modern aesthetic to create a simple and spare yet cozy and comfortable space. Belgian decorating is used to set the mood, not to call attention to individual items. There are a lot of natural fibers such as linen, sisal, and weathered woods. Furniture has often clean and simple lines without a lot of decorative excess. That said, it exists. Antique armoires, chairs and benches in raw woods with strong lines mix with modern items pieces that mix wood and metal are very popular.

Upholstered pieces are cozy and soft. by using loose slipcovers and pillows. Accessories play up nature whenever possible. Wicker baskets, piles of logs by the fireplace, ceramic pots, and wooden bowls are some examples of decorative accents.

**Contemporary style interiors**

![Contemporary style interiors](image)

**Ceramic pots used as decorative elements**

![Ceramic pots](image)
Artwork on the wall and cabinets is more elaborated than in minimalist style. Often candles or similar are added to table surfaces and mantels. Extra area rugs are used on the floors. Lighting has changed to frequent use of indirect lights and ceiling spots and includes a lot of large and small standing lights.

**Style bedrooms**

Modern minimalist on the other hand strives for simplicity using very little accessories. It is a concept of using streamlined forms, clean geometry, unadorned finishes and a simple or neutral color palette. The main goal of this scheme is to break down the frilly forms of period style designs, like those of the Art Nouveau movement, and turning them into basic, functional style for the home. This style is influenced by the timeless elegance of Japanese interiors, which has evolved into a contemporary Zen that exudes grace. The minimalism is the illustration of Ludwig Mies Van der Rohe's ‘less is more’

**Minimalist interiors**
Minimalist bedrooms

Non Structural Elements

Looking at the Belgian interiors the elements that are susceptible to being a potential danger during an earthquake (non exclusive list)

Hallway entrance: coat racks, mirrors, paintings/pictures on wall, standing art works

Kitchen; hanging cabinets, wall mounted fixtures for knives and other kitchen utensils, glass doors, content of cabinets (door locks), rolling elements, appliances sitting on work places

Living rooms: show cases with content, glass doors, decorative elements and art placed on cabinets tables, bar cabinets with bottles, rolling elements, hanging and standing light fixtures, paintings pictures, libraries, non safety glass used in tables or cabinets,

Bedrooms: standing wardrobes, decorative elements/artworks placed on cabinets and bed tables, rolling elements (bed tables), paintings and pictures, hanging and standing light fixtures, glass doors, mirrors,

Home offices: libraries, paintings pictures, decorative elements on cabinets, rolling elements (file cabinets),

Others areas: hanging and standing storage elements in garages or cellars, materials on wheels liable to move, free standing elements such as barbecue’s
The land of Bulgaria has been inhabited by various tribes, peoples and nations. All of them have left an affluent legacy of architectural monuments and landmarks.

The earliest signs of architectural constructions are prehistoric dwellings around the villages Karanovo and Hotnitsa, as well as the tombs near Kazanlak, Sveshtar and Alexandrovo. However, the real architectural history in the land of Bulgaria started at the beginning of the Thracian towns (Kabile, Sevtopolis, Pulpudeva) and the Greek colonies (Odesos, Mesambria, Apolonia). Later, when the Romans conquered Trace, they developed and improved many of the existing towns. They added numerous public facilities, amphitheatres, temples, town walls, baths, and military bases. Remnants from Roman architecture can be found in Sofia, Plovdiv, Nesebar, Hisar, Stara Zagora, Varna, Silistra, Ivailovgrad. In 5-6th century early Christian churches were found (“St. Sofia” and “St. George” in Sofia, the old bishop’s residence in Nesebar, the red church near Perushtitsa).

In 681 A.D. the first Bulgarian kingdom was found by Khan Asparuh. By the end of the first millennium many castles, strongholds, temples, palaces, and throne chambers were built. The buildings were decorated with mosaics, ceramic ornaments, stone plastic art, and mural paintings. Unique monument of
the Bulgarian plastic art is the Madara Horsemen near Shumen. It is one of kind in Europe from that period. After the Bulgarians became converted to Christianity in 863 A.D., many Christian temples and churches were built. During the second Bulgarian kingdom the Bulgarian arts and architecture were thriving. Among with splendid castles, many smaller, but better decorated churches were constructed.

In the first centuries under Turkish slavery (1396 – beginning of 18th century), the Bulgarian architecture had primarily a religious character. Most parts of the churches had to be sunken under the surface, because the Muslims did not want to see them from far away. Many monasteries were built or renewed. They were places where many Bulgarians could escape the harsh reality of slavery.

That is why these monasteries were situated in distant places, usually high in the mountains. The most famous of them is the Rila Monastery, which is the biggest on the Balkan Peninsula and is in UNESCO’s list of cultural monuments.

Residential buildings from the Bulgarian Renaissance period are the most popular and common architectural monuments. In many Bulgarian cities (such as Plovdiv, Nesebar, Lovech, Tryavna, Gabrovo, Veliko Turnova, Shiroka Luka, etc.) there are whole neighborhoods with houses from the 18th and 19th century. These places are usually very popular among tourists because they represent the unique Bulgarian architecture from that time. The houses are usually with two and sometimes three floors, as well as a basement that is used for storing goods. The first floor is made mainly of stone and
has fewer windows. The reason for that is the Bulgarians from that time wanted to make their homes as little castles where they can protect themselves from their current enemies, the Turks. Some Bulgarians also used the first floor for domestic animals. The second floor is made of wood and has much more windows. It projects over the street and thus provides bigger area for rooms. This special feature of the second floor is called “erker” or “kioskh”. They are supported by elegantly curved wooden beams.

Another typical thing is the large stone chimney that stands on the roof. Some of the houses have small yards surrounded by thick stone walls that have large wooden decorated doors. After the Liberation in 1878 modern urban planning and development took place in many of the Bulgarian cities, especially in the new capital, Sofia. Many buildings were constructed in the center of Sofia – for example, the National Parliament, the National Theater, “St. Alexander Nevski” church. In the beginning some of the buildings were designed by foreign architects, but in the end of the 19th century the new generation of Bulgarian modern architects started to create various architectural projects in whole Bulgaria. New banks, hotels, residential buildings, railroad stations, and administrative buildings occurred in every big city. After the World War II a communist government came into power. That is why in the end of the 1940s and the beginning of the 1950s the principles of totalitarian architecture, representativeness and impressiveness, were combined with classical architectural forms. As a result, new architectural style could be observed in some buildings in Sofia – for instance, hotel “Balkan”, the Central Shopping Mall, the Communist Party Building, and the Ministry of Electrification Building.
New state designers’ bureaus were created in order to centralize the architectural activities. Some industrial projects and new cities, such as Dimitrovgrad, Madan, and Rudozem, were built. The residential architecture transited from separated houses to large concentrated residential buildings such as apartment houses. The modern architectural tendencies can be found in the seaside resorts “Sunny Seaside”, “Golden Sand”, “Albena”, “Rusalka”, and “Eleni”. Another contemporary architectural project is the National Palace of Culture in Sofia.

After the fall of the communist regime in 1989 private architectural bureaus replaced the state designers’ bureaus, and the construction of buildings was taken by contractors. They started using new modern materials and technologies when they were building new banks and administrative buildings.

The base of the Bulgarian higher architectural education is formed in 1943 with the creation of the Architectural Department in the Higher Technical School. Later a separate university, now known as UACEG (University of Architecture, Civil Engineering, and Geodesy), became the most prestigious place to study architecture in Bulgaria. Other Bulgarian universities where you can now pursue an architectural major are the Higher Construction School “Luben Karavelov”, Varna Free University “Chernorizets Hrabar”, and the New Bulgarian University in Sofia.

**Some info about the interiors structure**

Typical Bulgarian rooms are:

- the living room
- the kitchen (dining room)
- the bedroom

It is typical for Bulgarian houses that the living room is the biggest one, though there are some other options.
Interiors styles

One can find nowadays a lot of multiple styles in the interior design of Bulgarian houses, depending upon the social status and culture of the inhabitants.

In luxury hotels, modern dwellings along the sea coast and in the country one can find the old XVIII–th – XIX -the century’s style of houses, mixed with modern European solutions, existing everywhere in Europe.
GREECE:

About Athens Style in Architecture

The heritage of the classical era is still evident in the city, represented by a number of ancient monuments and works of art, the most famous of all being the Parthenon, widely considered a key landmark of early Western civilization. The city also retains a vast variety of Roman and Byzantine monuments, as well as a smaller number of remaining Ottoman monuments projecting the city's long history across the centuries. Athens is home to two UNESCO World Heritage Sites, the Acropolis of Athens and the medieval Daphni Monastery. Landmarks of the modern era, dating back to the establishment of Athens as the capital of the independent Greek state in 1833, include the Hellenic Parliament (19th century) and the Athens Trilogy consisting of the National Library of Greece, the Athens University and the Academy of Athens. Athens was the host city of the first modern-day Olympic Games in 1896, and 108 years later it welcomed home the 2004 Summer Olympics. Athens is home to the National Archaeological Museum, featuring the world's largest collection of ancient Greek antiquities, as well as the new Acropolis Museum.

The city of Athens contains a variety of different architectural styles, ranging from Greco-Roman, Neo-Classical, to modern. They are often to be found in the same areas, as Athens is not marked by a uniformity of architectural style. Many of the most prominent buildings of the city are either Greco-Roman or neo-classical in styling. Some of the neo-classical structures to be found are public buildings erected during the mid-19th century, under the guidance of Theophil Freiherr von Hansen and Ernst Ziller, and include the Athens Academy, Athens City Hall, Greek Parliament, Old Parliament (1875–1932) -now the National Historical Museum, University of Athens, and Zappeion Hall.

Beginning in the 1920s, Modern architecture including Bauhaus and Art Deco began to exert an influence on almost all Greek architects, and many buildings both public and private were constructed in accordance with these styles. Localities with a great number of such buildings include Kolonaki, and some areas of the centre of the city; neighbourhoods developed in this period include Kypseli.

In the 1950s and 1960s during the vast extension and development of Athens, other modern movements such as the International style played an important role. The centre of Athens was largely rebuilt, leading to the demolition of a number of neoclassical buildings. The architects of this era employed materials such as glass, marble and aluminium, and many blended modern and classical elements. After World War II, internationally known architects to have designed and built in the city included Walter Gropius, with his design for the US Embassy, and, amongst others, Eero Saarinen, in his postwar design for the east terminal of the Ellinikon Airport.
Notable Greek architects of the 1930s–1960s included Konstantinos Doxiadis, Dimitris Pikionis, Pericles A. Sakellarios, Aris Konstantinidis and others.

Milestones in Greek Architecture/Resident – Athens

Ancient Times (5th c. BC)

Houses in 5th BC century in Athens were simple and poor, instead of luxurious governmental buildings spread in all town. They all had a small patio, and one unified room around. From the big Palaces came from the previous Homerian Era, Athens adjust its house to new democracy rules.

1880 – 1900

Athens became formal Capital of Greece, so:

- more buildings for governmental use
- enhancement of ancient greek heritage
- 1896 – 1st Olympic Games of new eras – new hotels and commercial buildings

1900 – 1922

Belle Époque – bourgeoisie’s rising - luxurious houses

1922 – 1940

Period between two wars – no new buildings and styles – only useful buildings according to war’s needs

1950 – 2000

Years of growing - Industrialization – Athens complexes

2001 – Today

Modernization Era

Nowadays Typical Home in City Center

Since Athens is an old town, with continuity in the urban tradition and habits, there is a variety of building’s age and style. But with a closer look, we can find two mainly Greek typical forms of houses, spreading in different residential areas of Athens:
- **Apartment**

Located in heart of city center, usually there are parts of 6 – 10 residential blocks, occupying the main streets of Athens. Often they are from 50 – 120 square meters, with a variety of interior design styles and components.

![2 apartments complex - basement](image)

Apartments share floors in complex of 2 -3 in each one, and they have public areas (stairs, courtyards, main entrances etc).

On average they will have one or two bedrooms, living rooms, dining rooms (usually in the same space), wc, in short more rooms that can be dedicated to basic purposes.

- **Maisonette**

This kind of house, usually located in wealthier suburbs of Athens, stands by its own, with garden and many auxiliary spaces and rooms. Often it is more than 200 square meters. At basement there are rooms for all family and guests (living – dining room, kitchen, office etc), and at first floor (which connected by stairs or elevator) are the bedrooms (some of them with inside bathroom).
Looking to the interior view, we can see lot of differences according to style (from classical to minimal “taste” of their owners.)
ITALY:

Italian National Building Stock

Data on the national building stock, and in particular of the residential one more significant for the sake of the present research, are mostly based on the outcomes of the 2001 census as far as much of the ones coming from the more recent 2011 census are still being processed.

It is nevertheless assumed that much of such results won’t significantly change the scenario described by the former census due to the consequences of the 2008 international crisis that has affected many sectors of the European and Italian market and in particular the constructions’ one.

The total national residential stock from 1919 (end of the First World War) to the end of the Second World War (1945) and then mostly from 1948 to 2001 is strongly affected by the so called “economic boom” of the Italian nation (since 1948 a republic) that occurred in the years 1958-1963.

From 1946 to 1991 there had been built 18.5 million residential units (i.e. family houses, whether apartments in blocks of flats or single houses) of which 4.3 million only in the period 1946-1961. The urbanization of the Italian territory is very intense and most of the major cities (in particular in the northern industrialized areas) are turned into metropolis in few decades (Turin and Milan double their size).

The growth of the built patrimony is evident from the following charts:

<table>
<thead>
<tr>
<th>date of building</th>
<th>residential buildings (and their conservation conditions)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>excellent</td>
</tr>
<tr>
<td>before 1919</td>
<td>321,515</td>
</tr>
<tr>
<td>from 1919 to 1945</td>
<td>179,837</td>
</tr>
<tr>
<td>from 1946 to 1961</td>
<td>262,252</td>
</tr>
<tr>
<td>from 1962 to 1971</td>
<td>421,296</td>
</tr>
<tr>
<td>from 1972 to 1981</td>
<td>581,533</td>
</tr>
<tr>
<td>from 1982 to 1991</td>
<td>542,007</td>
</tr>
<tr>
<td>from 1991 to 2001</td>
<td>566,397</td>
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<tr>
<td>total</td>
<td>2,874,837</td>
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<table>
<thead>
<tr>
<th>date of building</th>
<th>residential units per building</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
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<td>2</td>
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</table>

21
Such numbers are telling of some interesting aspects:

- **16.64 million residential units corresponding to 7.1 million buildings** (over the 60% of the total 27.2 million units and 11.2 million buildings) are built before 1971 and so before the first modern national technical legislation for the mitigation of the seismic risks;
- Of the above mentioned units almost 40% (6.6 million unit per 3.5 million buildings) have been built before 1945, that is to say with methods and technologies that belong to a pre industrial era;
- Of those units, 7.4 million (the 44% of the total of the same period and the 27% of the total patrimony), belong to a one single building (small 1 or 2 families detached houses) that are typical of the smaller towns, villages or rural areas, while the remaining 9.2 million units (the 56% of the total of the same period and the 34% of the total patrimony) count from 3 to 16 units per building and above (the more typical urban contest’s higher density buildings);
- Of those units 2.2 million (the 13% of the same period and the 8% of the total patrimony) are from bad to very bad conservative conditions that is to say even more prone to damages in case of seismic events.

If these numbers are then compared to the geographical areas more subject to seismic events (i.e. the ones mapped by national legislation as level 1 and 2 areas which together cover the 44% of the territory) and to the nature of such events (for example during the period 1985 – 2012 where those of a Richter scale magnitude over 4.0, perceived by the population, have been 480 of which 40 of a magnitude above 5.0 as shown in the graph below)
It results evident that 21,8 million people (38% of the total population) and 10,4 million residential units (37% of the total) are living a significant seismic hazard.

**National homes’ typologies, furniture and risk**

The following results are the outcomes of a research that spans from economical to sociological data both focused on the national reality of furniture production and its use inside residential buildings. It is intended to provide information on the kind of furniture that are mostly used inside of typical Italian houses and their degree of hazard in conjunction with seismic events.

Despite the recent market contraction (2011) Italy holds a clear leadership in the international furniture market with a good mean between price and quality and a 35% of the production directed towards foreign markets (mostly western EU countries, USA and Russia). Much of this production reflects the typical Italian structure made of SMEs geographically distributed in a number of specialized districts (i.e. north and north-eastern bed-room, chairs and kitchen furniture; central Italy living-room and office furniture; southern Italy upholstered furniture etc.). Office and kitchen furniture count together a lower export percentage due to the particular needs of a made on purpose production not always easy to be managed at distance. (data from ICE, National Export Office, and Dept. of Industrial Politics)

The Italian residential environment typology is, as elsewhere, affected by individual lifestyles and social class belonging. The 55% of families that reside in Italy live in flats (the prevalent building typology in urbanized contests) while those living in detached houses (usually one or two families with independent entrances to the property) are the 38%. (data from ISTAT, National Statistic Institute and EU-SILC, European Union Statistics on Income and Living Conditions). Moreover more than the 75% of Italian families reside in buildings built before 1990 and 17% in those built before 1950. The more recent
buildings (up to 2008) have been built in the peripheries of greater cities and in small towns and are lived by richer families.

As per the choice of furniture, it corresponds to the lifestyle and the consequent functional and symbolic needs. With the 19th and 20th century urbanization the living space (become a “dream” possible for many) has contracted into more and more “compact” apartments where the distinction between the more intimate spaces (the bed-room, bathroom and kitchen) and the “representative” ones (the entrance and the sitting room) got up to be mixed or even coincident as in the so called single-room apartments.

In the contemporary socio-cultural Italian reality, the following living scenarios can be mostly found:

1. the house of the SINGLE (who works outside): it is a sort of dorm and the more important area for the needs of comfort is the sleeping one (bed-room and bath-room);
2. the house of the STUDENT(s): it is lived also during the day and the studio area is often coinciding with the dining/living – room;
3. the FAMILY house: where all spaces have a clear and lived function and therefore require attention regardless their dimensions and the status of the family;
4. the MEETING house: more open to friends and guests where the important and representative areas are those as the living and the dining rooms, whether coinciding or not;
5. the COUNTRY or suburban detached house: that comprises sub typologies such as the farm house, the vacation house, the mansion etc. In this case the day area and the night one are usually well separated (in many cases they belong to two different floors) although they both cover a representative role.

Through this analysis it might be argued that certain houses are more lived in certain specific areas and that, depending on the kind of the recurrent furniture found in such scenarios, the risk of damages and injuries to people in case of a seismic event is higher and caused by those kind of furniture.
Furniture and the preferences of Romanians

Over 75% of the production for furniture in Romania, amounting to 1.82 billion Euros has been exported according to the information provided by the Association of Furniture Producers in Romania (APMR).

Thus, the exports increased with 17% in 2011 towards the previous year, generating sales of 1.38 billion euro more than in 2010, which represented a new record for the labour market.

On the other hand, in 2011, the internal consumption decreased with 17.5% towards two years ago, to only 793.2 million Euros.

"We estimate for this year an increase with 12% of the exports, meaning overtaking exports with 8%. It is something extraordinary that the difference between exports and imports exceeds a billion Euros. The increase of exports is bigger every year", declared in a press conference Aurica Sereny, president of the Association of Furniture Producers in Romania (APMR), according to Mediafax press agency.

At the same time, the imports of furniture increased with 10% towards the previous year, reaching 353.2 million Euros, according to the data of the association.

"The domestic market absorbed very little, while consumption continued to decline in 2011. It is worrying that the consumption from the internal production is reduced. Those who focused on exports were more advantageous", said Sereny.

Compared with 2010, sales from domestic production fell by 30%, recording a 55.5% share of total domestic turnover. The data presented are estimates of APMR and are based on results achieved in the first 11 months of 2011 compared to same period last year.

The main external destinations of deliveries of furniture produced locally were, at the level of the first none months of 2011, Germany, France and Italy, the Romanian companies being now interested in increasing their market potential in Scandinavia.

Most Romanians prefer modern furniture, simple and squared, and those with higher incomes prefer classic pieces of wood and leather.

According to the representative of the Association of Furniture Producers, Viorica Răbocea, Romanians are very selective: „Customers are very demanding and look for high-quality and durable materials. Most prefer modern furniture, made of panels, which has a lower price and higher functionality. As well there is currently demand on the market for furniture for young children and teenagers".
Furniture market trends are seen in the production line of companies already established in the field that have made radical changes in their approach and style furniture.

According to the financial possibilities, the preferences of Romanians are:

1. Young people prefer furniture plates, easy to install and maintain. Prices are also lower in this category.

2. Classic furniture, solid wood and leather have remained favorites of people with higher financial potential, not affected by the crisis. Costs for furnishing a room in this kind amounts to over 10,000 euros.
SPAIN:

The Evolution of the Housing Stock and the Evolution of the Population

In 1998, the housing stock in Spain amounted to a total of 486 dwellings per 1,000 inhabitants, with 27 dwellings per 1,000 inhabitants above the European average. Since that year, a total of 1,975,080 houses were initiated in the Spanish territory. Spain is the country that has most increased its stock over the past 30 years, evolving from being among the countries with a reduced stock to become the second power in the European Union.

From the 1980s, the population growth stops suddenly and from 1985, it evolves a single point each year.

Situation and evolution of the housing stock

<table>
<thead>
<tr>
<th></th>
<th>Dwellings per 1,000 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>313</td>
</tr>
<tr>
<td>Finland</td>
<td>317</td>
</tr>
<tr>
<td>Holland</td>
<td>289</td>
</tr>
<tr>
<td>Germany</td>
<td>339</td>
</tr>
<tr>
<td>Average</td>
<td>349</td>
</tr>
<tr>
<td>France</td>
<td>390</td>
</tr>
<tr>
<td>Denmark</td>
<td>365</td>
</tr>
<tr>
<td>Ireland</td>
<td>244</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>344</td>
</tr>
<tr>
<td>Sweden</td>
<td>405</td>
</tr>
</tbody>
</table>

Source: Raquel Rodríguez Alonso. Escuela Técnica Superior de Arquitectura de Madrid

Note: a Data relating to 1998.

Relationship between the Evolution of the Housing Stock and the Growth of the Population (1970=100)
Housing stocks in Spain are very recent. 44% of the Spanish housing in 1991 has been built between 1970 and 1991. Since 1991, 2,676,390 dwellings start. Only 21% is prior to 1949.

The level of housing building in Spain has reached levels similar to the real estate boom of the 1970s. From this moment on, the volume of built housing logically descended to keep nearly 200,000 from 1980 until 1993. From this moment and until today, the number of built dwellings annually suffers a clear emerging and sudden increase. This excessive building period is in line with the descent of social system dwellings. While during the 1970s and 80, the free market and social building went more or less in line, being bigger the promotions of social dwellings in certain periods, from 1986 they descended below the 100,000 annually built ones and are not reflected in the current build boom (in the year 2000 they represent the 13% of the finished dwellings and the 9% of those started in 2000 and 2001).

The building of recent years seems excessive in comparison with the existing needs and with the evolution of the population, is long standing. The latest Housing Plan 2002-2005 includes incentives for the construction of houses for sale and rental, but perhaps it is too late.
One level flats

Social houses
Dwelling Studies

The data about the dwellings in Spain are from the study realized in 2001 census for Spain, this study is made each 10 years, but the outcomes of the 2011 census are being processed and the data for the first analysis is estimated for the end of 2012.

<table>
<thead>
<tr>
<th>TOTAL Dwellings in Spain</th>
<th>14,187,169</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual homes</td>
<td>2,976,572</td>
</tr>
<tr>
<td>Multiperson homes that are not family</td>
<td>139,226</td>
</tr>
<tr>
<td>Families without non-family persons</td>
<td>10,857,013</td>
</tr>
<tr>
<td>Families with non-family persons living together</td>
<td>250,059</td>
</tr>
<tr>
<td>Two or more families together without other persons</td>
<td>46,711</td>
</tr>
<tr>
<td>Two or more families together with non-family persons</td>
<td>17,588</td>
</tr>
</tbody>
</table>

From this data and some other studies about the evolution of the furniture sector in Spain, AIDIMA through the Habitat Trends Observatory®, that is a research group from the Institute of Ceramic Technology (ITC), the Technology Institute of Furniture, Wood, Packaging, and Related Industries (AIDIMA), and the Textile Technology Institute (AITEX), developed the study NEW WAYS OF DWELLING (Nuevas formas de habitar), where there is analyzed information about the evolution of homes and families due to the changes produced on the last years.

The Habitat Trends Observatory® has undertaken various research studies on how our habitat is evolving and how it will evolve in the future, with the aim of providing habitat companies and professionals with tools for innovating and developing high-added-value strategies and products. This added value must be focused on consumers, in particular on dwellers, which explains why our goal is to identify and understand them.

We have analysed dwellers, how family models have changed in recent years and what repercussions these changes have had on our habitat (our cities, dwellings, and possessions), and the alternatives offered by habitat professionals.

To understand these changes it is essential to examine how new family models have emerged and evolved, and to identify the units that make up the new homes, how they behave, what their values are and, in short, what type of dwelling and possessions they need or desire.

In modern societies, we can see how new family models and living units are becoming increasingly varied. In Spain the spectacular increase in single-person homes, which rose from 13% in 1996 to 21% in 2007 (source: UNED, GETS); the ageing of the population – 1 out of every 5 Europeans is over 65 (source: IPF) – or the reduction in the average size of families, which went from 4 members in 1960 to 2.4 in 2005, illustrate the magnitude and speed with which these changes are taking place and which will undoubtedly affect the make-up of our homes and possessions.
Generally speaking, we are going to see a world in which the definition of the family has changed and the predominant family model, which corresponds to the nuclear family, has become splintered, giving rise to a broad spectrum of possibilities and an environment in which various ways of conceiving the family coexist. This has been brought about by a series of social, economic, and demographic factors that affect all the habitat-related sectors, sectors that are gradually proposing lifestyle solutions for the new dwellers.

**Principal changes in the habitat**

**The dwelling**

The conception of the home from the point of view of the users has changed much more than the housing concept put forward by the public and private sectors, resulting in two very different approaches that have grown apart, making it necessary gradually to narrow the gap that has developed. This likely and necessary interest in updating and innovating the dwelling goes far beyond aesthetics and finishes. Thus, the new dwellings will tend to reflect the diversity of lifestyles by providing flexibility and they will need to strive for the sustainability demanded by the users and concurrently required by public authorities.

The main changes that have occurred in relation to the housing concept are as follows:

- **A change in home composition:** young people leaving home later, or the drop in the birth rate and smaller average number of children per family, among other factors.

- **Sustainability:** this refers not only to the energy efficiency of buildings but also to what is known as the closed cycle (the 3 Rs – reduce, reuse, and recycle) and even the role the trades play in improving the environment, such as cleaning the air by means of green frontage or the integration of natural structural elements.

- **Flexibility:** this is one of the most widely used strategies for adapting to the changes in home units and in the mentality of unit members, and for coping with changes in their economic circumstances or the way the space in their homes is used.

- **Other ways in which change is heading:** issues such as dweller protection (development of a healthy home that does not merely offer protection, but also provides physical and mental benefits), the possibilities for experimentation (the dwelling being understood as a place for daily creativity, a particularly important aspect since the development of the digital home), or personal development in the home (whereby the home becomes an expression of the individual and the individual’s life achievements).
Furniture and decoration at home

Quality and functionality are demanded of course of everyday objects, but these basic requirements are intrinsic to good design and have, therefore, already been met. From the start, the aim and essential purpose of design has been to solve specific problems and offer solutions that enhance the person–object relationship, hence improving the person’s quality of life. A great number of products are available that fulfil the same need, so that consumers seek alternatives. It has become necessary, therefore, to examine what additional aspects are demanded of objects.

One highly varying aspect in recent years has been the issue of emotional input when doing things, which translates into a constant search for experiences in our homes, and for affinities or connections between objects and the actual consumer: in other words, objects that act as projections of our personality, ethical stance, and tastes. Furthermore, we want the objects we use to have a dual function, allowing us to manipulate them, creating the new role of the user as participant, these being objects that invite us to experiment and that use feelings and senses as a way of communicating with the dweller.

New family models

Stemming from the social changes that began in the 1960s, we have witnessed how, in recent decades, our conception of the home has been modified by a series of values that have gradually permeated modern societies. Generally speaking, we can use the analogy of a map containing a multitude of family models that differ from the traditional nuclear model. Currently there are a multitude of types of families and their family life is different to the European norm. In other words, the modern conception of the family is a broad one.

Perhaps the best definition of the contemporary family is a group of two or several people who generally live together for sentimental or legal reasons, or because they are related…’ (Copenhagen Institute for Future Studies, Family life and daily life towards 2017.)

From a sociological perspective, family experts describe this transformation as a splintering of the family model. In other words, the changes in the dominant social values, together with a series of economic and demographic factors, have led to a modification of the family model and a range of very different ways of creating families have emerged.

Nowadays families are smaller and the two-parent nuclear family is being replaced by other more varied and plural alternatives. The increase in the number of single-person homes and the rise in the number of single-parent families and childless couples, or couples with only one child, highlight this trend.

As a whole, the ways in which people share a home have become much more diversified and homes are much smaller than in the past, as a result of the changes indicated above. Thus, there are more single-
person and single-parent homes, both as a result of the spread of divorce and the difficulty of forming a stable relationship with a partner, together with the desire to remain self-sufficient and independent. On the other hand, there are also fewer homes with children and, in fact, large families have become a rarity.

**New home units**

- My other family: the increase and importance of cohabitation among people who are not blood relations; in other words, more and more homes are shared by people who are unrelated, whether young people, adults, or the elderly.

- Single mother by choice: in our society we are faced with a growing number of women who decide to be single mothers and who we could describe as women with inner resources that equip them to bring up their families on their own.

- The two-member family: this new family model is a true reflection of a new mentality, known in sociological studies as a DINK (double income no kids) couple, an arrangement in which each partner, who forms part of a new generation of men and women, is free to express his or her aspirations and desires.

- I am my family: these are persons that, of their own free will, decide to live on their own, independently. In this case, individualism and the search for personal satisfaction are the principles which guide the individual’s life in a society with a multitude of lifestyles.

- The restructured family: also known as the extended family, this is the result of the extension of collateral kinship networks, a situation in which children from different marriages live together. It is a phenomenon that has increased notably, owing to higher rates of divorce and second marriages.

- The negotiating family: the term negotiating family embraces the essential features of the change in intergenerational relationships. In the negotiating family, a new marital pact has been established, characterised by consensus and the conciliation of different interests and viewpoints.
TURKEY:

Furniture Placement in Ancient Turkish Houses

The most important part in Turkish houses is the room. Every room has some characteristics which can host a married couple. Every one can sit, sleep, have a bath, eat and also cook in every room. All of the rooms have same characteristics. The measurements could be changed but the characteristics not. These characteristics are related with traditional life style and as the life style hasn't been changed for long years, the room design has remained the same.

A changeable room layout was developed to meet the different actions which were mentioned above.

The shaping of the interior wall of the room was supplied in the dimensions adequate to human actions. Several functions of the room are supplied by many portables during the action. After the action the portables were moved.

In Turkish houses, the wardrobes are inside the niches. These wardrobes are called also as closet. The beds remain inside the closets and they are laid on floor in sleeping time and they are put in wardrobes again in the morning. In the meal time the table is set with the tablecloth, base, copper tray or wooden table taken from the wardrobe. After the meal everything is put in same place.

For this reason, the central area of the room has been left empty. The cedars to sit are at the front of the wall. Meal and sleeping arrangements are the same both in castle and tent. The multipurpose use of the room and the absence of the furniture in the central area of the room are also the characteristics of a Japanese house. It's thought-provoking that the Japan which had taken many cultural and use elements from China, didn't take the Chinese furniture. It is impossible not to remember Middle Asia which is one of two origins of Japan on this subject.
Furniture Placement in Present Turkish Houses

Nowadays, as the placement and decoration elements must be convenient to our age; smaller spaces, private demounted furniture and spaces with many wardrobes are designed. Therefore, safe montage details are applied.

In present Turkish houses, lots of furnitures are used. Turkish people prefer to use several furnitures in their daily life. Generally all of the parts of the houses are used efficiently. Although the women spend much time in the kitchen than the other family members, all of the rooms have the same rate of usage. In each room there are decoration elements which can pose a risk. In the kitchens high wardrobes and white goods, in the bathroom mirrors and wardrobes, in the bedrooms accessories which are hang on bedhead, in children’s room the accessories hang on walls, high wardrobes and bunk beds pose risk. Nowadays, the montage of the furnitures in the life area must be made safely and correctly.
2. Description of furniture through the different spaces at home in the different countries.

During the XIXth and beginning of XXth century, there is a big difference between the furnishing in the different countries participating in this project, that is linked to the religion, culture, and economic situation, also the World Wars affected in different way the countries.

Is after the Second World War when the globalizations began to appear due to the industrialization of production, and the growing of cities against the country side life.

The furnishing style started to be homogenise, at the beginning of the XXth century trough the different architectural and artistic movements as Art & Crafts, Art Nouveau, Bauhaus, Modernism and Minimalism that comes from the defined as Italian style. Then the Nordic furniture style and the natural evolution of technologies have been introduced in the furniture. This means that there are a global furniture likes and styles for most of the European countries and especially for the one participating in this project.

There is a compilation of the styles and types of furniture through the different types of rooms existing in a standard house. Analysing the potential risks to take into account to prepare for a hypothetic earthquake.

The analysis is focused on:

- Living rooms
- Kitchens
- Bedrooms
- Children’s rooms
- Bathrooms
- Home offices
- Entrance hall
BELGIUM living rooms

Belgium typical living room from the early to middle part of last century. Houses in those days were very structured and contained an entrance corridor that went all the way to the back of the dwelling. The corridor also contained the stairs to the next floor. The first place was a so called salon, which contained a set of divans and one or more show cabinets in which the best porcelain of the lady of the house was exhibited. The second place was a living room containing a table with six chairs with a buffet cabinet containing the second best porcelain. The table would be covered with a heavy cloth (damask or something similar and crystal pieces would be exhibited on the chimney. On the walls would be some heavy framed paintings or pictures. There would also be some number of religious type decorations on the wall and on the buffet cabinet. In both the first places the light would be centrally on the ceiling and very heavy. The third place would be the kitchen where the actual living was done. It would contain a heavy stove to cook and a series of cabinets to put the utensils in. There would be a kitchen table with a small light above it. Wall hangings would be much lighter and concern sayings and sundry decorations. Behind this place there would be a second kitchen where the rough work would be done and that would give out onto the yard. On the other side of the yard would be a wash place for both clothing and humans. Upstairs there would be three to four bedrooms. Each bedroom would have a large very high bed, a clothing cabinet and a wash table. There would be also one or more chairs. Lighting would be central and light. The bed would have two bed tables next to it. The next floor would again contain three or four rooms as families used to be much bigger. Decoration in every room would certainly include some religious elements such as crucifixes or pictures or painting of saints. Draperies before the windows would be heavy with underneath a transparent drapery. All through the house ceilings would be with visible beams.
Today obviously much has changed. Apart from budgetary concerns it is mostly a chosen style that dominates the way the house is furnished although of course a number of furnishing items did not change due to their nature: a table is a table and a chair is a chair. What has changed much more radically is decorations, although also some furniture is no longer quite the same and some new items have cropped up.

Formal dining rooms have gone completely out of fashion and cabinets such as the classical buffet are no longer used very often. On the other hand in several interior styles, the use of show cabinets has continued or even increased. In an number of cases, antiques are used.
BULGARIAN living rooms

Due to the variety of types, typical furniture is hard to be described. Nevertheless as typical furniture sets one can point out:
- furniture sections in some cases as high as 2,5 metres
- TV sets
- flower pots
- paintings etc. hanged on the walls
- lighting appliances
- book shelves

All fore mentioned can be sources of a potential risk to a different extent
GREECE living rooms

In this case is a modern living room with the sofa and chaise longue as predominant furniture, the potential risk comes from the lamps paintings and the book shelves.
ITALIAN living rooms

SINGLE’s house  A double-room apartment’s entrance holding the function of kitchen, dining and living room. Where the risk causing furniture is Wardrobes, closets, shelves, mirrors and paintings hanged on the walls.

STUDENT’s house A living-room area with a recessed studio that fits both student and home-office needs. Where the risk causing furniture is libraries, shelves, and paintings hanged on the walls ordenador y elementos que cuelgan del techo
FAMILY house A typical city apartment living-room. Where the risk causing furniture is cabinets, showcases, open shelves, cupboards, sideboards, bookcases, closets.

MEETING house A well designed dining/living room. Where the risk causing furniture is cabinets, showcases, open shelves, lamps.
COUNTRY house. A rustic country house living/dining room. Where the risk causing furniture is cabinets, showcases, open shelves, breadbins, hutches, sideboards, dressers, bookcases.
In all of them the maximum risk is on the hanging items, television devices and the objects on the open shelves.
SPANISH living rooms

The living rooms in Spain have different styles more classical and more modern, normally depending on the age of the habitants, but in all the cases the furniture that is contained in the living room is quite similar:

- Main piece of furniture with open and closed departments for books, photos, etc.
- Vases, and pieces of decoration on open surfaces
- Mirrors, paintings and other decoration hanged on the walls
- Table, chairs and sofas
- Centre table in front of the sofa
- Ceiling and floor lamps

The maximum risk during seismic movement are the open shelves, TV devices the hanged objects, ceiling and floor lamps and the main piece of furniture if is not fixed to the walls.
TURKISH Living rooms

Nowadays, high sideboards and partitions are applied frequently in the living rooms. Their montage should be made safely or they shouldn’t be used. Television wardrobes and big dimension televisions are commonly used in the living rooms. Their montage is very important. Also big mirrors and heavy lighting materials are used. Their aesthetically immobilizing has vital importance.

Importance to be given to the montage of high wardrobes and partitions

Accessories over the sitting part
High wardrobe models in sitting spaces

Thinking about the right montage of the luminaire and mirror accessories in dining room part
Another radical change has been the kitchen. Today every apartment or house has a built in kitchen with all appliances integrated. The open kitchen has been a modern design staple for some time now. The pros of such an open and airy space, are many. They allow people to freely flow in and out of the adjoining rooms, and are usually closely located near a dining room or breakfast nook, which encourages togetherness, closeness and an all-around more social, and more interactive environment. These open kitchen designs are mostly very minimalist oriented and often allow a complete closure of all the cabinets so that no single item stays visible in the kitchen when not used.

Modern built in kitchens

BULGARIAN kitchens / dining rooms:
The variety of available furniture here is also great. Furniture and additional sets, sources of a potential risk may be defined generally as

- electrical appliances – dish washing machines, fridges, sorts of machines, supporting kitchen activities
- furniture sections, either fixed on the wall or standalone
- shelves with /without drawers
- others

All fore mentioned can be sources of a potential risk to a different extent
GREECE kitchens

ITALIAN kitchens

STUDENT’s house A kitchen that covers the needs of a living/dining room, typical of students’ rented apartments. Where the risk causing furniture is open shelves.
FAMILY house A usual family kitchen filled with loose objects and containers. Where the risk causing furniture is shelves and the objects placed on, wardrobes.

COUNTRY house A holiday house kitchen. Where the risk causing furniture is hanging objects, shelves.
ROMANIAN Kitchens

The risk during an earthquake is caused by all the elements that are on the kitchen worksurface or inside the cupboards if the doors open during the seism.
SPANISH kitchens

The structure in the different types of kitchen is practically the same, just changing the materials and colours of the doors that change the appearance of the kitchen.

The furniture that is inside the kitchen is mainly composed by cupboards and wall cupboards, then the electrical appliance and some cooking equipment that might be on the worksurface of cupboard when the seismic movement appears.

The risk during seismic movement is produced by the electrical appliance and the wall cupboards if the doors open easily and left fall out the cooking equipment store inside.
TURKISH kitchens

Nowadays many wardrobes are used in the kitchens of the Turkish houses. As the Turkish women have many kitchenwares, they prefer to have many wardrobes to save them. The upper kitchen wardrobes carry a lot of load, for this reason their montage must be done very secure. It's important to strengthen with side pillars. However, the wardrobes which aren’t bound on any wall and bounded on ceilings are used and this is very dangerous. This kind of furniture can be used if they are supported with steel construction. Otherwise the wardrobe models which are mounted must be preferred surely.

Wall-mounted installation of the modules is also important.

The importance has to be given to the montage of the high-glazing and ceiling-mounted modules.
BEDROOMS

BELGIUM bedrooms

In the bedrooms today there is a much higher frequency of built in cabinets as exist in the USA. In many houses there is no longer a separate clothing cabinet in the bedroom but a so-called walk-in closet, a small room with built in storage for clothing.

Walk in closet
BULGARIAN Bedrooms:

- beds, different types. Risk with them can be reckoned tending to zero
- wardrobes – different types. Some types are heavy and carry potential risks for causing problems in case of an earthquake.
- drawers – they can also be a source of a risk
- TV sets, computer sets – they can also be a source of a risk
GREECE bedrooms

Observar la estanteria en la pared

ITALIAN bedrooms

SINGLE’s house An attic converted into a bedroom (or studio, as it happens in urban contests) with loosely distributed different kind of furniture. Where the risk causing furniture is Wardrobes, closets, shelves
SINGLE's house
A bedroom with a tall wardrobe (usually placed alongside the bed) that acts as a separation from the bathroom. Where the risk causing furniture is Wardrobes, closets, shelves

STUDENT's house
A typical bedroom lightly furnished for the needs of a student. Where the risk causing furniture is bookshelves, libraries, shelves
FAMILY house A stylish “old generation” bedroom. Where the risk causing furniture is cabinets, showcases, open shelves, cupboards, sideboards, bookcases, closets
ROMANIAN bedrooms

All the elements above the bed are really dangerous while the seism, so it should be better to find another kind of design.
SPANISH bedrooms

The furniture that composes a bedroom consists on the bed, bedside cabinet, bedside table, dressing table, wardrobe and chest of drawer principally.

There has been and evolution inside the bedroom for example in the wardrobe, until 15 years ago the wardrobe was a separate piece of furniture, and nowadays is part of the structure and architecture of the house, the wardrobe is now embebed on the wall, and is not a separate piece of furnitirure. In this way you don’t waste space and the interiors are bigger.

Example of embebed wardrobe

The rest of furniture has the uninconvenient of fallings and movements during the earthquakes, and also the decoration on the walls, specially above the head of the beds are really dangerous in this kind of situations.
TURKISH bedrooms

Nowadays in the bedrooms wardrobes, frames, several accessories, mirrors, paintings and shelves are installed on headboards. It’s obvious that this habit creates a big risk against earthquake. As in the classical models, the legs aren’t so balanced and sufficient and it poses a danger. In the bedrooms the wardrobes are placed close to the bed and high and it raises the importance of the montage.
Inconvenient accessories on headboard and around the bed

High wardrobes very close to the bed
Dangerous shelves close to the headboard

Classical furniture legs are convenient to fall down and there is higher risk of rollover
Mirrors, lighting accessories and paintings must be mounted correctly.
Children’s rooms did not exist as a separate type of furniture before. Today it is a very specific market with very specific product requirements. The safety of children’s furniture and specifically bunk beds has been regulated through EU directives. One characteristic that children’s furniture has in common with a lot of other furniture made today is that it is no longer meant to last forever. Our parents inherited bedroom furniture and dining room furniture from their parents but today such transition is no longer made and based on the quality of the materials used could no longer be made.
ROMANIA children's rooms:

Elements around the bed are not convenient for the security of children.
SPANISH children's rooms

In the children’s room there is normally plenty of toys and books when the children starts to go to school, normally the children's room evolute to an adolescent room while they are on the higher education.

The principal problem in case of seisme are the shelves and the furniture that contains books and toys, because of the risk of falling, taking into account that the rooms normally are not so big, and the bed is near to this shelves.
TURKISH children’s rooms

Nowadays, bunk beds are used commonly in children’s room. It’s very important that these types of beds are supported with steel construction, mounted safely and strengthened. These furnitures are generally demounted and this increases the risk factor. The demounted furniture should be mounted safely and be supported with an external montage. Besides, as in adult bedrooms wardrobes, frames, several accessories, mirrors, paintings and shelves are installed on headboards. It’s obvious that this habit creates a big risk against earthquake. It’s very common in children’s room that high wardrobes, shelves and other accessories are hanged on wall, even if not on headboard.
The upper part of the bed must be produced intact.

High wardrobes must be installed on wall

The montage of the wardrobes hang on the headboard wall is very important

Dangerous high wardrobes close to the bed
The montage of the high wardrobes on the bed is very important
ITALIAN bathrooms

FAMILY house The often refurbished old bathroom. Where the risk causing furniture is wardrobe and shelves.
SPANISH bathrooms

The most dangerous inside the bathroom are the shelves and other pieces of furniture that are used to storage the different types of soaps, cream, etc.
TURKISH bathrooms

Nowadays many wardrobes and mirrors are used in the bathrooms of the Turkish houses. These wardrobes and mirrors must be mounted safely. Mirrors are used on the showers and bathtubs.

The importance of the montage of the bathroom wardrobes.
Safe montage of the mirror inside wardrobe and over bathtub.
Another type of furniture that is new is the home office for the PC and for the televisions and music installations.
The use of libraries has become much more frequent with the increased literacy and they are very often been included in offices or dens. Mostly they are free standing but also wall attachments are made in every conceivable style.

**GREECE home offices**

![Greek home office](image)

**Greece library**

![Greek library](image)

**Library**
SPANISH home offices

The principal problems are the open shelves and other hanging objects.
ENTRANCE HALL

SPANISH entrance hall

The most usual pieces of furniture in the entrance hall is a narrow table or sideboard to have some decoration and to place the keys or other elements. Usually also there is a coat rack where place the coats and bags. There is also very often a big mirror.
**TURKISH ante-room**

Nowadays, coat hangers are used commonly in ante-rooms of the Turkish houses. They have big risk of downtrown and closing the entrance and exit during the earthquake. Especially in sliding coat hangers which are used commonly, there is a big risk of dislocation of the sliding and falling with the mirror during the earthquake. Because of this, their montage has to be made.

Wardrobe models which should be mounted correctly

Coat hanger models used presently
3. Conclusions.

As showed in the previous pages in all the countries there are lots of different kind of furniture that are used inside homes.

This study pretends to be an starting point to look for solutions that helps to decrease the damages produced during and earthquake. As conclusion we can consider to look for common solutions to apply in the inerior furniture of houses, because the general typology and disposal of the furniture inside homes is similar trough the different countries studied.

As indicated at the beginning of this study, the interior of the houses of the different countries participating in the project has evolved in such a way that all the images that show us to have a certain similarity from the point of view of the interior decoration and the furniture and accessories that are used.

We note that depending on the economic status of families there can be a certain difference from the point of view of the level of design in the nonstructural elements, however in all cases we find a wide variety of non-structural elements that can be hazardous at the time of produce an earthquake, and the security systems are lacking in all the cases.

Certainly there has been an evolution of the houses, as well as the evolution of the models of families or styles of interior, however all of them

Non-structural items that call the attention include:

- Shelving
- Pictures
- Cabinets
- Bunk beds children
- Indoor stair lift
- Lamps
- TVs
- Computers
- Elements of ceramic ornament
- Mirrors
- Cookware, from microwaves to refrigerators
- Etc.
It is convenient that the user is aware of the danger that can happen in the case of an earthquake about all these elements and thereby put remedy either possible fastening elements to prevent the damage that these elements may cause.
4. RESOURCES

www.tendenciashabitat.es

www.fotosearch.gr

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