

Santi Romero

## 4 Post-occupancy evaluation of ten public libraries in Barcelona Province

When architectural advice ends up being of real value

### Introduction

As background, I am going to give some information about my country, the city I live in, the institution I belong to and the work I do.

Spain has an approximate area of 500,000 km<sup>2</sup>, a population of 47 million inhabitants and is organized in 17 autonomous communities. The Autonomous Community of Catalonia has 7.5 million inhabitants and is organized in four provinces. One of them is Barcelona, which has a population of 5.5 million and is distributed in 311 municipalities.

The Diputació de Barcelona, which is the organization I work for, is a supra-municipal institution whose mission is to help the municipalities of the province so that they can offer the citizens the local services that law defines.

For the public library service, economic and technical help is provided and it is offered through the Library Services Management Unit,<sup>1</sup> which is the leader and manager of the Municipal Library Network of the province of Barcelona. At present the network is made up of 220 libraries and nine mobile library buses, so the library service reaches 98% of the population. There is an approximate increase of ten new libraries every year. The fact that we work in a network facilitates optimizing existing resources and economies of scale. It also guarantees territorial balance and equal access to information, knowledge and culture for all citizens.

One of the multiple functions of the Library Services Management Unit is helping town councils to plan and to create new libraries. To do so there are some service standards, that have been applied to the Autonomous Community of Catalonia since 2008.<sup>2</sup>

These standards are mainly quantifying and provide dimensions for the collection, the building and the facilities (space area, number of reading stations, etc.), human resources and weekly service hours. Planning of library equipment

---

<sup>1</sup> <http://www.diba.cat/biblioteques>. Accessed on 20 March 2015.

<sup>2</sup> [http://www.diba.cat/documents/16060163/22275360/Estandards\\_castella.pdf/](http://www.diba.cat/documents/16060163/22275360/Estandards_castella.pdf/). Accessed on 20 March 2015.

is based on these standards, as well as the forecast for the local situation and the needs and characteristics of every municipality.

In order to assess the whole project process and the construction of the buildings, the Library Architecture Unit, which I am responsible for, was created. It is made up of three architects. We give architectural advice to both the architects who carry out the project and the municipal technical services. We are involved in the whole project process and in the building construction, as well as in the furniture and interior installations. As architects specialised in library buildings, our main mission is to achieve an architecturally interesting building but one that, at the same time, can offer a satisfactory library service. We are currently working on about 70 projects, which affect 45 municipalities.

Our network has a total of 232,000 m<sup>2</sup> of usable surface area for a public library. This information shows that the average usable surface area per library is 1,100 m<sup>2</sup>. In the past years there has been a great move to improve and expand the network. In 1995 the total surface of the libraries was 45,000 m<sup>2</sup>, and in the last 19 years the area has increased by a factor of five.

The Library Services Management Unit also created the Statistics and Quality Unit, which evaluates all aspects relating to planning, creating, launching and maintaining the buildings, as well as the daily operation of public library services offered to the community. It also has a permanent organized evaluation system for users' satisfaction standards, expectations and needs. These, and other feedback mechanisms for the work that has been carried out, allow us to detect errors and establish ways to make improvements.

## The need to evaluate library buildings

The aim of this article is to promote the importance of evaluating libraries some time after their opening, in order to ascertain if the forecast expectations were met and if the libraries are functioning well. Identifying the positive aspects of the library design and also any bad choices made allows us to find solutions, and above all, draw conclusions that will help improve future library buildings. It also ensures that, when a library project has been created through a satisfactory process for acquiring advice and through interdisciplinary work, any errors and faults detected are fewer and also easier to correct.

It has been shown that in order to design a satisfactory library building it is very important to achieve two things: the architects should be told what sort of building is required and there should be advice from someone who knows the library needs. The architect needs a detailed programme or brief giving informa-

tion about the library to be built. In architecture schools students learn how to transform needs into buildings, but do not necessarily know, for example, what is needed in a prison, a hospital or a public or university library. Therefore, the architect should be told what kind of library is needed, what spaces there should be, how large it should be, what kind of public will use it, what activities will be carried out, how many documents and user places there should be, what the relationship between spaces needs to be – either directly connected or separated – what needs to be easy to find when entering the building, etc. All this will help the architect understand how the library should work, so that the user can make best use of it.

Once the architect has this functional programme, it is beneficial to have someone who knows about libraries to help them in the whole process. Generally it is a librarian, but it would be ideal for it to be a library specialist architect, as this can make communication easier. It is well known that when advice is given by librarians, they can sometimes feel isolated among so many architects and engineers. That is why it helps if they are used to interpreting plans and have some knowledge about the facilities, the finishing materials, etc. This way the collaboration is more fruitful. Ideally, advice should be given from the start of the process, because in architecture the most important decisions are made at the beginning. It is at that stage that it becomes obvious if the project is on the right track or not, and it is easier to make changes, and even to be able to plan a completely different library. If advice comes later, it is more difficult to suggest radical changes. Despite this, it is always the right moment to improve a project.

A lot of library buildings have serious functional problems but even so some of them have become architectural symbols of the cities where they are located. In most cases, these problems are due to decisions made not in the library world but for of political reasons. We should make every effort to avoid building badly planned or badly project-managed facilities, and post-occupancy evaluations are a good tool to use in order to avoid repeating the same mistakes. The price of a well designed building and of a badly designed one is very similar, because it depends mainly on the exterior skin, the building materials, etc. However, a library that is not fit for purpose will be more expensive to maintain, more staff will be needed, their work will be less efficient and users will not feel as comfortable.

It should be admitted, however, that it is very difficult to plan a library that works well. Even though I am one to reject any impulsive decisions and go rather for a coherent architecture, it is almost impossible to achieve everything we want in a building. Let's take a public library as an example. We want to convey a feeling of spaciousness and ensure there are great lines of sight from the foyer, so that when entering, one can grasp what the library is like. We also want open spaces and ones that are connected without doors or divisions. However, we must

realize that in order to do this we need large volumes and high-ceilinged spaces that have to be air-conditioned and heated and that could then cause noise problems. The main façade, where the main access to the library is, should be the most important from an urban point of view, irrespective of whether it is well oriented or not. We want great openings to have visual contact between the interior and the exterior, but we don't want direct sunlight, which will cause us problems and will cause more energy consumption because of the need for air-conditioning. We want a lot of people to come to the library, but we know that attendance will be irregular and that the library will sometimes be very crowded and sometimes very empty. We want to feel comfortable at all times, not too warm or too cold, bearing in mind that perhaps someone is sitting down reading, and someone else is doing a more dynamic physical activity, and that everybody has a different body temperature. However, if we find out that energy consumption is very high, we will think that too is wrong. We have to accommodate many different needs; we want to be able to be anywhere in the library to read calmly and in private, without anyone bothering us, or to listen to music and be relaxed. We also want to be able to work or study in a group, all with suitable lighting. However, it would appear cosier if the lighting level was not equally high everywhere and there were lighting contrasts. We also want plenty of sockets everywhere to plug in our electronic equipment, but we do not want visible and untidy loose wires. The architects' task is difficult because they are expected to have a solution to multiple demands. Moreover, one of the greatest difficulties in a library is the contradiction of it being a public space but dedicated to private and individual activity, such as reading or studying. In order to achieve good results, the architect should take account of all the determinants around the project and, with suitable tools, choose the best solution.

## **The case of the Library Services Management Unit**

As I mentioned at the beginning of the article, the Library Architecture Unit of the Library Services Management Unit of the Diputació de Barcelona provides advice throughout the whole process of the creation of new library buildings and for the extension and renovation of existing libraries. As for furniture and interior equipment, and in order to guarantee that the library functions correctly, the project is managed directly by the Library Architecture Unit in collaboration with the commissioned architects for the building.

Having to inspire and participate in so many projects has an advantage, because we can constantly detect and correct errors. So, approximately 12 years

ago, and from the information that was provided to us by library managers, we started to detect some small-scale faults, most of them related to furniture. We found out that we had made decisions that, although seemingly beneficial, had had negative consequences.

In 2004 we decided to start an evaluation of existing libraries, in order to ensure that new buildings would continue to represent the best in design and functionality. At the same time, these evaluation studies meant that each new project would be informed by the improvement opportunities detected in existing libraries, as well as enabling new criteria to be incorporated. An interdisciplinary team of architects and librarians was created, and we started an inspection round of libraries that had been opened in the last three or four years, with the purpose of being self-critical both from the architectural and the library point of view. In these inspections we used a questionnaire with questions on the following topics: location, accessibility, general organization of library areas, finishing materials, heating and air-conditioning, artificial lighting, acoustic conditions, electricity and computing, building maintenance, and arrangement and functionality of furniture.

However, the workload and the large number of new libraries opening in the last few years forced us to suspend this study temporarily. Even so, the questionnaire was a good starting point for incorporating some of the questions into the satisfaction studies that the Statistics and Quality Unit carries out systematically.

At the same time, in 2011, an evaluation study targeted at library managers was carried out, which recorded their opinions on the whole building process, the opening period and the functioning of the building during the first months after the opening. Part of the questionnaire dealt with some aspects relating to the building and managers were asked for their opinion on natural and artificial lighting, heating and air-conditioning, acoustic conditions, arrangement of furniture, location and size of the counters. This publication also includes a detailed paper on this topic by Mercè Millán, Ester Omella and Assun Viladrich.

Also in 2011, the IFLA Library Buildings and Equipment Section decided to create a post-occupancy evaluation questionnaire covering a range of topics that would enable the identification of both wise decisions and errors in library planning, building and functioning. The financial crisis, the high cost of keeping a building open, the importance of sustainability in order to preserve the planet, the need to manage libraries with less personnel, etc., had all highlighted the need to rationalize resources and to build libraries adapted to the reality of the local situation; in summary design libraries that are more functional. A project team was created, in which the author took part, and the document that formed the basis of this work was the questionnaire that we had developed in the Library Services Management Unit in the year 2004. The final document published by

the Section (*Questionnaire on Post-Occupancy Evaluation of Library Buildings*<sup>3</sup>) is organized in three parts:

- General: location, accessibility, sustainability, flexibility, etc.;
- Building: entrance area, materials, flooring, openings, air conditioning, lighting, data, furniture, etc.;
- Services: service areas, user areas, children’s area, shelving, automation, maintenance, etc.

## Post-occupancy evaluation of ten public libraries

The development and publication of the *Questionnaire on Post-Occupancy Evaluation of Library Buildings* gave the Library Services Management Unit the opportunity to make the most of this useful document in preparing a questionnaire which could be adapted to our situation and that was applied to the Municipal Library Network of the province of Barcelona.

In January 2013 we published the *Questionari d’Avaluació dels Edificis Bibliotecaris* [Questionnaire on Evaluation of Library Buildings], which is very similar to the IFLA LBE POE and is also organized in three parts:

### General:

- General data;
- Location;
- Accessibility;
- Flexibility;
- Sustainability;
- Security;

### Building:

- Entrance area;
- Façades;
- Flooring;
- Ceilings;
- Acoustics;
- Artificial lighting;
- Heating and air-conditioning;

---

<sup>3</sup> <http://www.ifla.org/publications/questionnaire-on-post-occupancy-evaluation-of-library-buildings?og=61>. Accessed on 20 March 2015.

- Installations fed through a wiring system;
- Logistics areas (toilets, cleaning, installation rooms, etc.);
- Maintenance;
- Interior design;
- Furniture;

Services:

- User services;
- User areas;
- Promotion and activity spaces – multipurpose hall;
- Newspaper and magazine area;
- Children’s area;
- Management area.

In 2014, the “Action Plan of the Library Services Management Unit” created an objective with the heading “Analysing quality and condition of ten library buildings evaluating the characteristics: the organization of the building, the areas and the equipment”. The idea was to use the questionnaire for ten public libraries in the network. With the aim of drawing conclusions which were as complete as possible, the libraries had to have been opened between 2009 and 2011, what meant between three and five years of operation, and they had to have different typological characteristics.

The decision was made using the following criteria:

Opening date:

- three libraries opened in 2009;
- five libraries opened in 2010;
- two libraries opened in 2011;

Type:

- four new library buildings;
- three renovations of existing buildings;
- one renovation of a historic building for library use;
- two renovations and extensions of historic buildings;

Size:

- four libraries with 1,400 m<sup>2</sup> of usable surface area;
- four libraries with 2,000 m<sup>2</sup> of usable surface area;
- one library with 3,000 m<sup>2</sup> of usable surface area;
- one library with 5,000 m<sup>2</sup> of usable surface area.

The libraries that are a part of this study are the following:

- Biblioteca Antonio Martín (08820 – El Prat de Llobregat). Opened in 2010. 3,028 m<sup>2</sup> of usable surface area. New building.<sup>4</sup>
- Biblioteca Can Baró (08757 – Corbera de Llobregat). Opened in 2010. 1,523 m<sup>2</sup> of usable surface area. Renovated and extended historic building.<sup>5</sup>
- Biblioteca de Masquefa (08783 – Masquefa). Opened in 2011. 1,328 m<sup>2</sup> of usable surface area. Renovated historic building.<sup>6</sup>
- Biblioteca Ernest Lluch i Martín (08340 – Vilassar de Mar). Opened in 2009. 1,951 m<sup>2</sup> of useable surface area. New building.<sup>7</sup>
- Biblioteca Esteve Paluzie (08210 – Barberà del Vallès). Opened in 2009. 2,031 m<sup>2</sup> of usable surface area. New building.<sup>8</sup>
- Biblioteca Joan Coromines (08320 – El Masnou). Opened in 2011. 1,932 m<sup>2</sup> of usable surface area. Renovation of an existing building.<sup>9</sup>
- Biblioteca Mestre Martí Tauler (08191 – Rubí). Opened in 2010. 4,971 m<sup>2</sup> of usable surface area. Renovation of an existing building.<sup>10</sup>
- Biblioteca Singuerlín-Salvador Cabré (08924 – Santa Coloma de Gramenet). Opened in 2010. 1,748 m<sup>2</sup> of usable surface area. Renovation of an existing building.<sup>11</sup>
- Biblioteca Zona Nord (08033 – Barcelona). Opened in 2009. 1,462 m<sup>2</sup> of usable surface area. New building.<sup>12</sup>

A meeting with the managers of these ten libraries was held, where the purpose of the questionnaire was explained. Most of the questions could be answered

---

**4** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/349054/422968](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/349054/422968) . All library sites listed were accessed on 20 March 2015.

**5** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/347812/7764031](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/347812/7764031) .

**6** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/348356/424352](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/348356/424352).

**7** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/352163/423868](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/352163/423868).

**8** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/346721/423884](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/346721/423884).

**9** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/348330/423848](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/348330/423848).

**10** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/349212/21313829](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/349212/21313829).

**11** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/351218/478114](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/351218/478114).

**12** [http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal\\_content/56\\_INSTANCE\\_2r6Q/347252/424344](http://bibliotecavirtual.diba.cat/detall-biblioteca/-/journal_content/56_INSTANCE_2r6Q/347252/424344).

by them, in collaboration with their library staff. For the more technical aspects relating to energy consumption and building maintenance, they could count on the collaboration of technical services in each town council.

A timetable with three delivery dates was agreed, one for each part of the questionnaire. The aim was to allow the managers to have time to think about the answers and reply in depth. They were also encouraged to be critical and to include comments. Their answers were to be used to rethink some of the underlying concepts and, if necessary, to reconsider the library model on which our architectural advice is based.

At the time of going to print, the second part of the questionnaire is not yet completed. However, it was considered appropriate to take advantage of this opportunity and include in this article some of the conclusions from the study. In order to do that, the managers were asked to make an effort to answer as many questions as possible.

From the answers received, the most important aspects of the evaluation are the following:

#### Location:

- All ten of the evaluated libraries are well located in the city centre;
- Four of them are on a square, which favours the carrying out of activities there. Because of this, the libraries are an important revitalizing point in the town's cultural life;
- There is also a library located in the city centre, but not in the area where the shops and bars are. Therefore, the number of visits is fewer than might otherwise have been the case and promotional activities and other strategies have to be carried out in order to attract more users;

#### Accessibility:

- Most of the libraries have not been planned to facilitate autonomy of people with poor vision. Also, in two of them, disabled people have difficulties in entering, given that access doors are not automatic;
- There are two libraries with fewer visits because the areas where they are located do not have many free parking spaces for cars.

#### Flexibility:

- In all libraries, public use areas are flexible enough to promote change and even include new services;
- In three of them it is not possible to use some spaces independently (multipurpose space, bar, study area, etc.) when the library is closed. This fault

in building organization prevents the town from taking advantage of night study, cultural activities during a holiday, etc.;

- Conversely, in one of the libraries the town council has taken advantage of the possibility of using the bar and the study area independently and has taken the spaces over and reorganized them as municipal offices. Therefore in this case the flexibility of the building has gone against the library service.

#### Sustainability:

- Most of the libraries do not employ renewable energy, and when they were opened, they also lacked energy-efficient artificial lighting. The latter has been improved with time, by substituting the lights. Sensors to regulate light intensity also had not been installed. Only toilets have motion detectors and self-closing taps;
- This lack of provision regarding energy consumption when constructing the building is offset in some libraries through awareness campaigns run by library staff. As well as adjusting the artificial light intensity themselves, depending on the natural lighting level, users know that if they need more light, they should ask for it.

#### Security:

- In almost all the libraries there are graffiti on the external walls and in the toilets;
- When toilets are hidden or distant from the spaces for library use, vandalism increases significantly;
- Although specific security staff are never needed, there are two libraries located in troublesome social contexts that have vandalism problems caused by teenage groups, and they are sometimes forced to call the town police.

#### Façades:

- All libraries have the right visual contact between the inside and the outside. It is a feature that is considered vital for public libraries. At the same time, both dimensions and composition of openings, and solar protection systems, give a satisfactory level of natural lighting indoors. Although all buildings had solar protection systems when they were opened, in six of them sun-light came in directly in some areas. In the majority of cases the problem was solved by putting up interior curtains;
- There are two libraries which, because of a project error, lack a security system to prevent users opening the windows, so locks had to be installed to prevent accidents and the theft of documents.

#### Flooring:

- In all libraries the flooring is terrazzo, granite or linoleum, and the evaluation is basically positive regarding aesthetics, comfort and maintenance. In only one library is the linoleum flooring being damaged in passing places and in areas with tables and chairs. This would suggest that it is a manufacturing defect;
- The existence of special flooring around the access doors, which reduces water leaking and dirt from shoes is appreciated.

#### Acoustics:

- More than half of the libraries have insufficient interior noise absorption. This problem increases in high-ceilinged areas and in the access areas to the multipurpose hall and the bar, due to the accumulation of people entering and exiting. There are also two libraries without an inner door (double door), and the exterior noise inconveniences users in the lobby;
- In contrast, in all libraries it is positively appreciated that the children's area and the bar are separated by glass walls, which allows visual contact but prevents the transfer of noise.

#### Artificial lighting:

- Three libraries have some areas with an insufficient lighting level, and in three of them, lighting is cold and provides a gloomy atmosphere. Both are a project or execution error, since the requirement is always the same: a uniform lighting level of 500 lux on the working level (located at 75 cm from the floor) and colour temperature of 3000<sup>o</sup> Kelvin;
- There are four libraries where switches are not well located and the library staff are not able to adjust lighting according to needs, which would enable significant energy savings.

#### Heating and air-conditioning:

- All libraries have heating and air-conditioning, but in nine of them there is insufficient thermal comfort, due mainly to sudden temperature changes. Such a negative evaluation has different reasons, and one of the more important is the difficulty of achieving satisfactory comfort in a building where so many different activities are carried out throughout the day, and with an irregular attendance;
- The problem worsens in five libraries, because it is not possible to have natural ventilation. Two of them are totally hermetic buildings, which is highly inadvisable in the Spanish climate, because during most of the seasons it would be possible to manage without air-conditioning or heating if there was good

natural ventilation. In the other three libraries there is only natural ventilation in some areas;

- There is a library with glass façades, which causes an excessive heating of the building and a high consumption of air-conditioning.

Installations fed through a wiring system:

- The wiring system is usually built-in ductworks between the floor structure and the flooring, or beneath the floor structure. The general evaluation is positive, both because of the generous amount of connections and for the ease of access and expansion of the installations. In some of the libraries where the multipurpose hall is used as a study area, there is a lack of sockets for connecting electronic devices;
- A quite common problem is the excess of loose wires, which apart from appearing untidy, can cause accidents and technical problems.

Maintenance:

- The only negative evaluation comes from two libraries which have some inaccessible windows requiring a special cleaning service to be hired;
- There are also four libraries where, because of budget issues, there are not enough cleaning staff.

Interior design:

- Warmth of interior areas is positively valued. The volumetric composition of every area, colours, natural light, artificial lighting and arrangement and design of furniture make the user feel very comfortable;
- The staff are dissatisfied in just one library, because both the furniture and the flooring are too dark.

Furniture:

- Quality, ergonomics, furniture arrangement and access distances are positively valued, because they allow users to move around easily;
- There are three libraries in which the counter in the access area is too large, and in five others it is thought that fewer lockers for personal belongings are needed, because they are not used;
- Regarding colours, there are two libraries in which furniture is so dark that dirt and fingerprints can easily be seen.

User services:

- Five of the libraries which lack automatic self-service systems find it necessary to introduce them to be able to spend more time on information tasks;

- The fact that in three libraries the 24/7 external book drop is not located by the main door, which means that users do not notice this service and do not use it much;
- Three libraries do not have photocopiers, which forces users to go elsewhere to make copies.

#### Main public spaces:

- In all the libraries the standards requirement for the number of study spaces and the dimensions of the collection is achieved;
- Regarding silent study areas, which is a very common request in all municipalities, most of the libraries use group study rooms and the multipurpose hall to offer this service;
- Only one library does not have enough study areas, and in another, the town council took over the study area to turn it into municipal offices.

#### Multipurpose hall:

- The possibility of using this space independently when the library is closed is very positively valued. This is the case in nine out of the ten libraries. Moreover, in two of them, the multipurpose hall can be amalgamated with the access area with sliding doors, which makes it more versatile;
- There are two libraries in which the multipurpose hall has no visual contact with the access area which is why library staff cannot open the space for the uses that require surveillance. Moreover, in one of them there is no opening onto the street, so the space is not very attractive. The fact that it is hidden, both from the inside and from the outside, means that it is not possible to use it for many activities, such as exhibitions.

## Conclusion

After analysing the evaluations, the first impression was that there were no obvious dysfunctional areas in the buildings or in the interior installations.

Libraries were planned using service standards and a specific functional programme for each library. There has been continued advice throughout the whole project process and building construction, which is based on a very well-defined library model. This advice was carried out by a team of architects with experience, from rules and criteria that were defined, but at the same time they were adaptable to every situation. All this has resulted in functional, useful libraries which are well valued by the community.

Bearing in mind that the aim of this questionnaire is to obtain information that allows us to think about the work that was carried out, to detect errors and to establish improvement measures, the final evaluation would be the following:

What is satisfactory?

- they are well located, which shows that in the planning of our libraries it is right to choose sites in the town centre, although we know that they are scarce and expensive;
- they are the right size to offer services, exhibit the collection and have the study stations recommended in the functional programme;
- space and movement arrangement are clear and easy to understand from the moment one enters the library;
- it is possible to move freely through all spaces with only one control on the main door;
- they lack architectural barriers;
- they are flexible enough to allow changes and they have areas that can be used independently when the library is closed;
- they are open to the city and the façades allow satisfactory natural light and visual contact between interior and exterior;
- artificial lighting is suitable for carrying out all the activities, and at the same time it does not prevent making changes in furniture arrangement;
- they have enough electrical and computer connection points;
- the buildings are easy to clean and maintain;
- interior areas are warm, cosy and they have a feeling of spaciousness;
- items of furniture are durable, comfortable, attractive, easy to modify and fit for their purpose, and furniture arrangement is tidy and allows users to move around easily;
- internal working areas are comfortable and in all of them the library staff have rest areas and their own toilets.

What is not satisfactory? What should we reconsider?

- we have not considered the autonomy of people with poor vision;
- buildings are not very sustainable: renewable energies are not used, little thought has been given to introducing energy saving systems and in some cases it is not possible to have natural ventilation;
- all main access doors should have an inner door and should be automatic;
- façades touching the floor should have a surface finish which would allow cleaning of graffiti;
- there should not be any openings that lack protection systems against sunlight or that are inaccessible to clean with ordinary methods;

- we should be stricter about acoustic comfort and demand effective absorption elements in all areas;
- artificial lighting should always be warm, and regulation mechanisms should be easily accessible by library staff, preferably located in the counters;
- heating and air-conditioning systems should be improved to make the stay more comfortable;
- electrical and computing wiring should not be visible and untidy;
- counters in the main access area should be better dimensioned, because they are sometimes excessively large;
- we should re-evaluate the use of lockers for personal belongings. It seems like they are being underused and the reason could be that they are not well located or that there are more than required;
- the 24/7 external book drop for return of documents should be next to the main access door to the library, so that the door and the book drop become one;
- self-service systems for lending and returning documents should be introduced in all libraries so the staff can focus on helping users;
- all libraries should have silent study areas, as well as specific areas where youngsters feel comfortable.