INCORPORATING THE PRINCIPLE OF “FLEXIBILITY” IN THE DESIGN OF EDUCATIONAL SPACES

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Why flexibility?

Flexibility in educational spaces is one of the most important challenges for today and tomorrow in all over the world!

Why?

∞ The pedagogical and didactic activities are continuously changing (with or without reforms!);

∞ The use of the spaces can also change during the day (e.g. adult education, use from the community, etc.) and for longer time (e.g. use as hostel or refuge in particular cases);

∞ It is possible besides a total changing of the use during the building life (e.g. residence, public or private offices, little hospital, etc.)

Two easy principles for a good flexibility!

The brief flexibility

The possibility of daily and/or hourly changing of the space components (learning areas, connective, etc), preferably guaranteed by the easy closing and opening of the common or sliding doors and by the quick re-programming of the plant systems components. This may be carried out, for example, contextually using modular spaces, from the amalgamation, even temporary, of spaces (e.g. connective) and from the application of some typical tricks of modern domotics (Computer Integrated building) integrated in the electrical and network plant.

The long flexibility

Modification adaptability with longer timings (weekly, monthly, quarterly / every four months, annually), which will act on the sides (especially on the internal dividers) and on the plant systems. This will lead to the inevitable use of industrialised assembling / disassembling elements and plant tricks (heating /air-conditioning, illumination, hydraulic and special connections, discharge systems, wiring systems, etc.) projected for «modulars», with programmable functioning and calibration.

But more than words is useful to show a practical experience!
Let us imagine a modular learning space suitable for holding 24/25 students/pupils (small / medium groups, classes, etc.) with a piece of connective / corridor, and with a basic module of 7.2 X 7.2 m (Cisem research (Italy) on Flexible Didactic Module Prototype (DM))

In the below linear perspective of one basic DM you can see the important role of the mobile partitions and the communication between the different spaces (DM, connective / corridor, multipurpose little space (MLS))

Obviously a modern and efficient educative architecture have to pay attention even to sustainability (bio-architecture, energy saving, indoor pollution, natural ventilation, artificial lights)

It is important then, how we have already said, that all the plant systems are flexible and modular. The DM prototype makes use of 4 hollow pillar, modular heating with a mix of air and water panels, CIB

Below you can see the internal of the Flexible Didactic Module Prototype carried out by Cisem thank both to Province of Milan financing and private sponsors.

Now let us possible imagine the aggregation of traditional organisation classroom
(frontal lesson) and traditional labs. How you can see we will have about 125 students / pupils and a double corridor (Picture below)

Let us imagine now a different didactic organisation (in this case by thematic areas), with small, medium and big groups.

To realise this solution it is sufficient to close some common doors (brief flexibility). For a long flexibility (overall quarterly / every four months, annually) it is possible to act on the mobile partitions. Note the number of student is now 50% more than the previous TDO (Traditional Didactic Organisation) (Picture below)
Through a long flexibility tricks it is then possible to change very quickly the spaces purpose, in case of need (even urgent). In this plan we have planned out the possible changing in a little hospital or youth / aged hostel with 24 beds (Picture below)

Below you can see a virtual display of a primary school building which we are carrying out in Italy, inspired to principles of total (brief and long) flexibility. The gross square meter cost is about 1,200 € (about 1,445 UD).

Quite a lot of this principles and experiences are reported, in Italian and English, on the “Intelligent School” website.