Dalry Primary School

Report prepared for North Ayrshire Council & The Scottish Arts Council
By Bruce McLean and William McLean - 2003

Client Group

Jim Leckie	Head of Service, Education NAC
Maureen Denningberg	Head Teacher, Dalry Primary School

NAC Technical Services - Architecture

David Watts	Architect NAC
Irene Farish	Architect NAC
Peter Togneri	Architect NAC

Expanded Design Team

Bruce McLean	Artist / Teacher UCL
Will McLean	University of Westminster
Gary Woodley	Artist / Teacher UCL
Robert Webb	xco2 Environmental Consultants
Mel Gooding	Writer / Critic
John Walter	Artist

Project Management - Coordination

Linda Mallett	Gingko / NAC
Tom Littlewood	Gingko

The design of a primary school

"The 'client' is a combination of all who are in any way affected by the architects actions", Cedric Price 1967

Why a school ?

The place of a school, which is not your home, is a useful model. However, these models seldom produce environments, which raise the spirits. If we accept that a school is a reasonable idea (and for the purposes of this project we most certainly do) then how can these places transcend the rigermorole of accepted functionality and attain the dizzy heights of the imagination of the child. For this we believe it is necessary to reasonably question every pre-determined design solution currently employed in school design and to state or restate what the aims and purposes of a primary school actually are. These aims might be simple, and could include making extraordinary and constantly changing environments within which to socialize, play and learn new languages (in languages we include mathematics, music, science etc). These aims might also include an appraisal of temperature within the confines of the entire school site, resulting in a zoning of human comfort predicated on variable functions across that site and acceptable levels of shelter from wind, rain and sun.

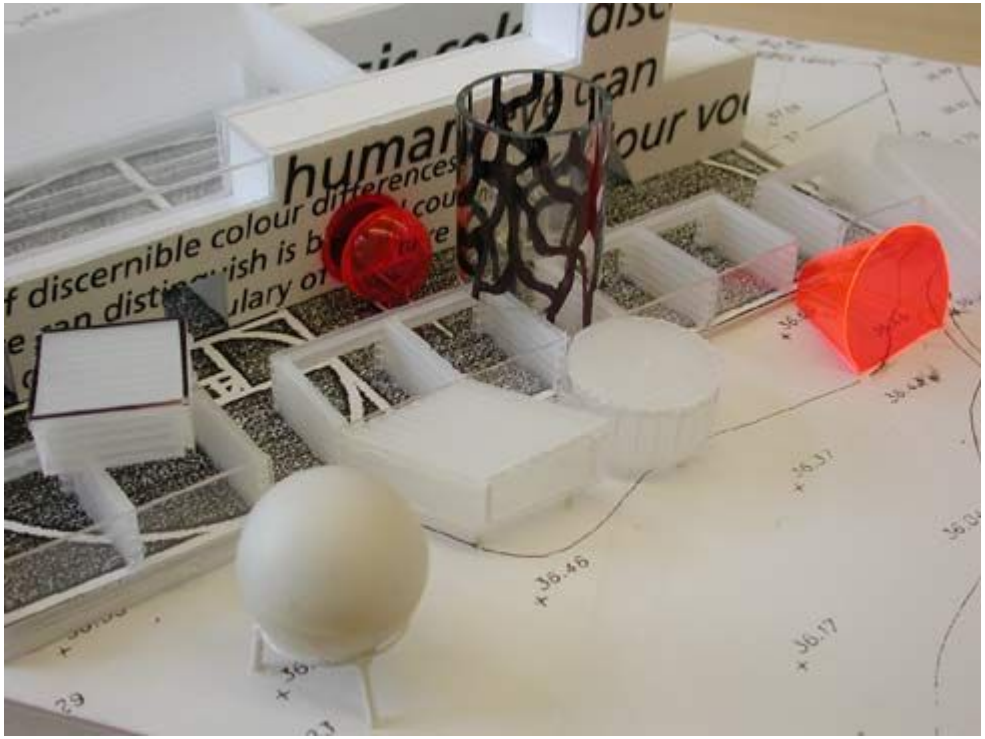
Information Design / Imbedded Intelligence

This refers to both local computational capability within a built form, but also the implicit information that any structure contains, be that its weight, material construction, power requirements etc. This 'information' may be made visible through a variety of means, and whilst it may not lead to an instant understanding of how and why that built form has been fabricated in such a way, it is available information, which can be studied. Other intelligences or thoughts can also be superimposed on any given structure. This additional material or information could take the form of text and number, colour, form (geometry) and texture (material construction, fabrication techniques).

Architecture for learning in will have specific properties or characteristics, which facilitate activities through physical form.

At primary level the method of learning is about making & doing and the architecture should facilitate this. "Architecture" meaning the design of a whole environment and not necessarily simply the buildings.

The architecture as a learning resource will illustrate philosophies, theories, ideas and Inspire curiosity. It will make invisible the visible. It may confuse your senses "Ames room" and its buildings will be instruments of measurement; barometers (both environmental and social). These ideas for school design must not be limited by there application as "theming" this is not sufficient and does not allow for future possibilities of understanding and misunderstanding which makes an environment stimulating.



Model 6, Dalry Primary School with projecting "houses"

Form Rooms

These are places for reflection, study and enquiry. They are of similar dimensions, but of different material construction and elevation. These spaces are distinct entities and can be independently identified by students.

The recurrence of seven as a theme

Primary School = seven years of study
Seven years x two streams =14 classes
Seven x seven = forty nine 49m2 = size of a classroom

Dimensions of a classroom 7m x 7m x 2.9m building block

Different rooms - different materials, acoustic qualities etc. Similar dimensions, but different. Rooms 1-7 x 2 + 1 = 15

Groupings of the rooms 1, 2, 3, 4, 5 = 15

Structure of school as given
1. Nursery
2. Level 1-3 = 6 classrooms (lower school)
3. Level 4-7 = 8 classrooms (upper school)
4. One additional classroom (15th Room - The additional room)

The 15th Room is the “project room” a cube on which to project ideas. Film, drawing etc.

A room for nothing, not a room for something

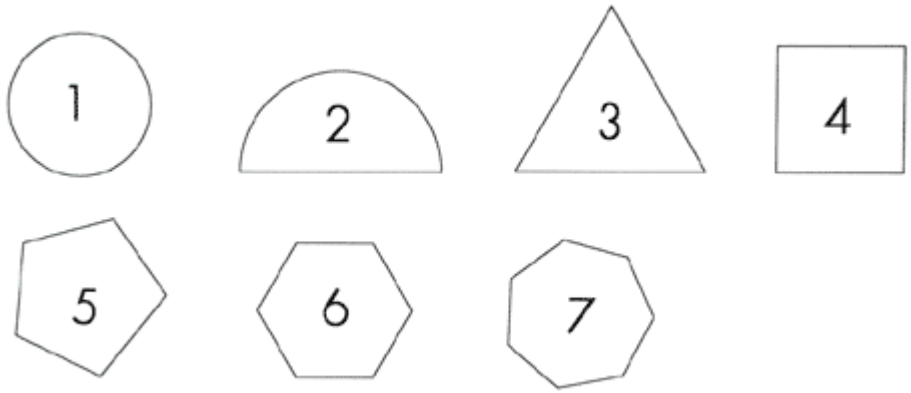
Objet d'education

Grouping of the rooms is important and their relationship with each other and outside.

Purpose - Not use (distinction made)

Rooms to have a purpose, not a multi-purpose
D.Watts

The smaller the children, the bigger the room.



The small geometric shapes describe a Class base of 49m2 @ a scale of 1:200. There are two sets of seven objects (Class bases) which each have an additional wall, starting with one wall for the circular class, two for the semi-circular class, three for the triangular class etc.

The Ames Room devised by American psychologist Adelbert Ames II, utilising a 3-dimensional corrected perspective, which gives the impression that the room is rectangular, and thus tricks the eye into beleiving that one of the figures is a giant. (from Richard L. Gregory's book Eye and Brain - The Psychology of Seeing World University Library 1966

Dalry

In 1874 Patrick Geddes opened the outlook tower on Castlehill. A biologist and town planner (a distinct but perhaps symbiotic combination of professions) Geddes created a window on the world: a constructed route up and down a stone tower, led you through a visual Exploratorium of the world outside with a camera obscura at the pinnacle.

"The worlds first sociological laboratory, nucleus of the University of the Future for all Neo-technic thinking and teaching and for the new Encyclopedia Civica"

Colin McWilliam, The Buildings of Scotland, Edinburgh. 1984

The planning of site at Dalry is inspired by Geddes's living museum to create a model community who live, work and learn, testing the principles of a new sustainable community. We propose to Masterplan the site for workshops, housing, schooling and healthcare. We propose that the success of such a project is entirely based upon the mix of these uses, which are not mutually exclusive. In the same way that a school is a place to experiment and learn the site must function thus. A good school facilitates experimentation, both physical and mental by the provision of equipment, and a variety of spaces and human resources.

The zoning of the site takes at its heart the notion of a school and in particular a primary school. A site where the making of things is clearly visible and, which will function successfully as both schoolroom and workshop floor. Behind these proposals are the pressures for school buildings to function outside normal school hours and benefit a larger proportion of the community.
Any new school should look impressive, and it must be a serious building which does not patronize its pupils.

Deputy Head, Dalry 2002

Images of dalry looking towards existing school building

Dalry Model 1

The layout of the model is designed to fit within a master plan sketch byArchitect David Watts (North Ayrshire Council). Delineated by the illuminated section is an area, which would house all accommodation, required by school and nursery?

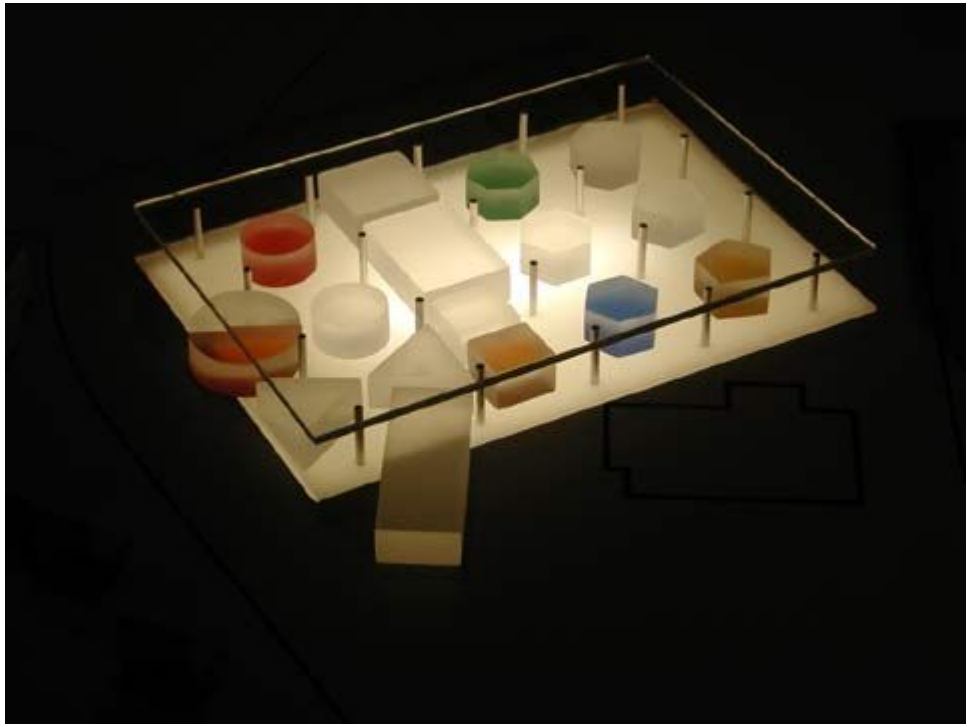
The small geometric shapes describe a Class base of 49m2 @ a scale of 1:200. There are two sets of seven objects (Class bases) which each have an additional wall, starting with one wall for the circular class, two for the semi-circular class, three for the triangular class etc.

The model is purely speculative and as such only seeks to explore the possibilities of class bases as discreet and distinct forms and that each space, although similar in overall size, might exhibit quite different characteristics and geometries.

The model is also designed to be played with and that the relationships between different rooms, functions and processes can be explored through changing patterns or arrangements and more calculated moves in the way one might play chess or other board games

Local Knowledge

Any new project like this must include an appraisal of local skills, crafts, manufacturers and suppliers. Companies like Ayrshire Metals in Irvine are one of the countries leading supplies of cold - rolled steel sections for automotive and construction industries. As part of a genuine approach to sustainablity which includes the social economy it would seem appropriate to explore collaborations with such firms.
As has been proved on small-scale projects like the "Cardboard Classroom" www.cardboardschool.co.uk technical innovation in design can produce challenging new models.



View 3 Study Model for Dalry showing it's position on the site at large. Note the outline of the existing school.

Dalry Model 2
Irene Farish, David Watts, Bruce McLean, William McLean

During a meeting on the 25th October 2002 a small model was constructed to examine the relationships between varying proposed spaces for the new Dalry Primary School. Orientation on the site suggested South-facing class bases with all the large spaces to the North of the site, which would afford access outside of current school hours. The gentle slope of the site also recommended that the school exist on more than one level with the use of shallow ramps and walkways. The use of more than one level also opens up the area above the classbases to become outdoor classrooms and elevated promontories.

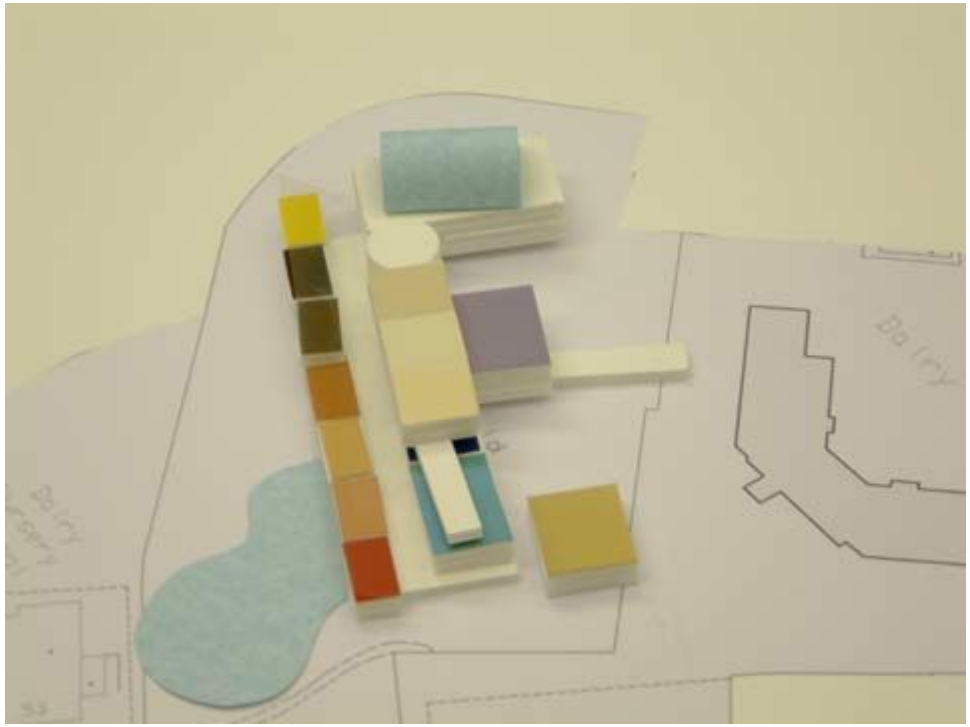
Components

- The Site - including the approach to the whole site
- Public Spaces - Access outside school hours
- Internal landscape, need not be natural
- Stages / performance / sport / art (the big spaces)/ eating
- Facilities / operational spaces - to facilitate and coordinate the running of the school
- Servicing spaces - to service WCs etc
- Teachers will need places to work at school, independently of the classrooms.

Qualities

- Dominant geometries
- Scale
- Colour
- Material quality
- Light
- Sound / Acoustics
- Heat
- Demarcation of forms, functions and assumed use.
- A sense of place - Orientation or which way is South?

The Paths of the Sun and Moon must be described or made visible by the architecture



Study Model 2 for Dalry showing a linear arrangement of class spaces and the bridge into the building.

Dalry Model 3 - Imbedded Intelligence

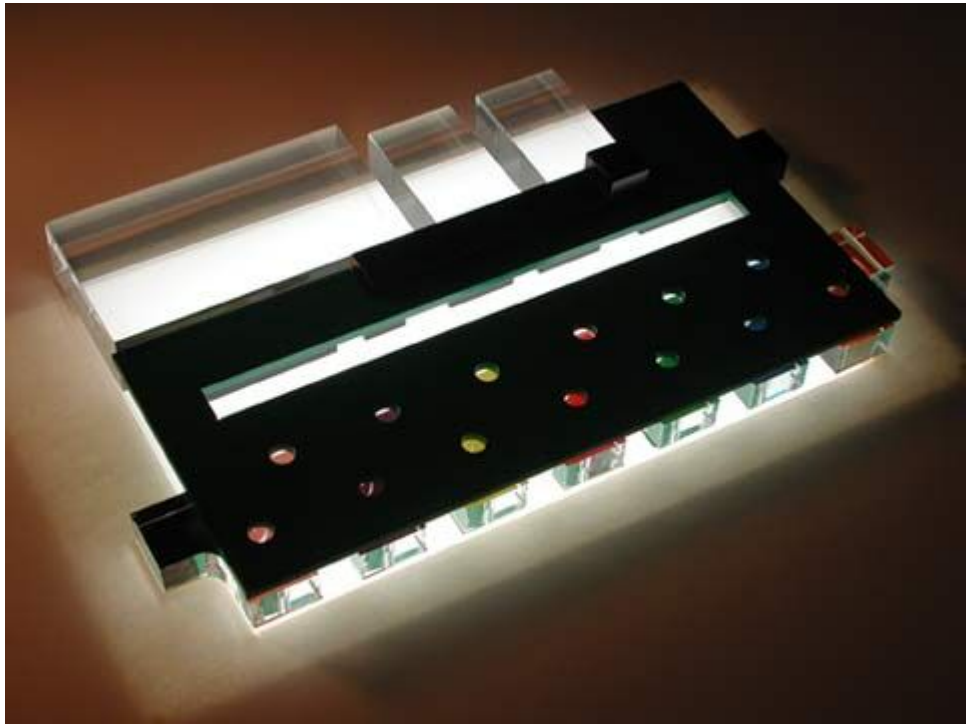
To develop a thoroughly researched and informative blueprint for a new school. To produce at Dalry a building like no other that stands the test of time, both in its construction and use. To highlight the additional elements and developments made possible through the history of the Primary Space project.

DESIGN DEVELOPMENT

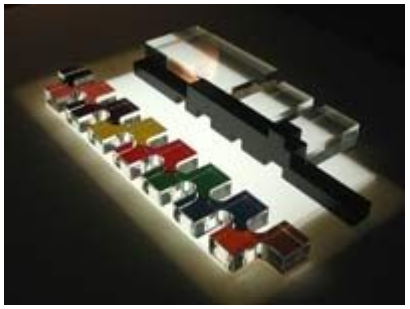
The design of a new Dalry Primary School is seen from its earliest stages as a truly collaborative development by the whole design team, covering:

- Consultation
- Brief development
- Building fabric, furnishings and fittings
- Site strategy
- Environmental awareness and sustainability

The collaboration and consultation process, both internal and external, that has informed the design development, has been additional to the normal design processes undertaken by North Ayrshire Council and has led to new developments additional to the "standard school building".
A central premise of the design has been that of “Imbedded Intelligence” and that the additional research and development is implicit in the design and fabric of the building and not explicit as a “bolt-on” feature. As such, the project can be seen as having developed a far larger potential than that contained within the lottery funding application. The proposal below is laid out to include general design development inherent to the building - and identifiable additional features that, whilst still imbedded in the design, would not be realisable without additional funding.



Model 3 showing "form room" snakelike classroom configuration



Dalry Model 4 - Architectural Sculptures/The Houses

The development of templates for seven beautiful and durable sculptures, seven houses, seven brains, seven CPUs with external antenna, intuitive environmental control (opening windows etc) and additional features, these are high spec. learning vehicles with specially designed docking bays. At least one of these may be moveable (maybe the eighth or fifteenth unit).

Houses

The school is conceived as a collection of houses. Each house is ascribed a particular function or thematic description, which suggests patterns of use and occupancy. The houses are grouped in three clusters:

- Communal areas (dining hall, gym hall) that will also be used by the wider community.
- The functional 'spine' (kitchens, offices, toilets, plant room, storage).
- Building fabric, furnishings and fittings
- Classbases accessible only for school use.

Learning Houses

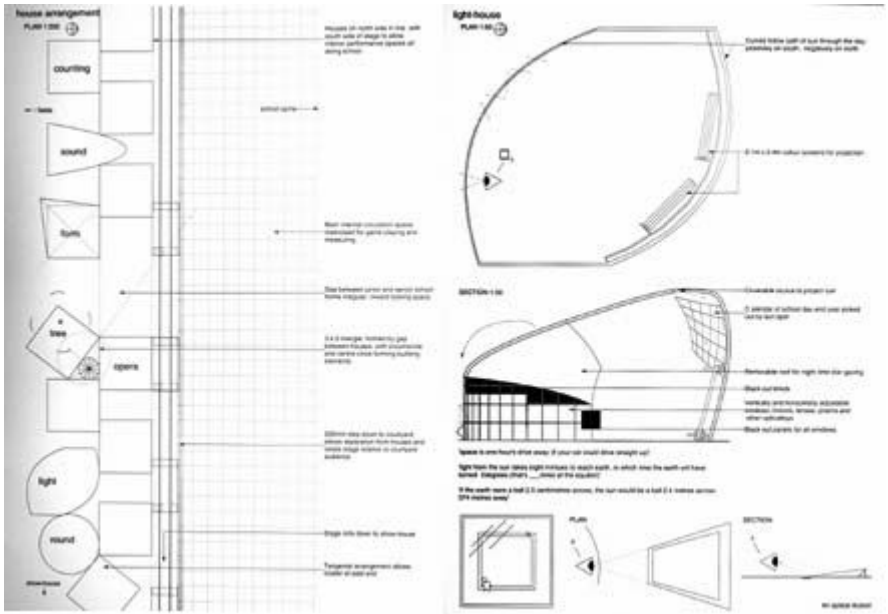
The proposal places particular importance on the classbases or learning houses, which number 15 - two parallel streams of seven classes plus an additional house for the display and demonstration of the children's work (poetry, performance, painting, 3-dimensional objects etc.)

Each pair of houses, shared between two year-groups, will consist of one simple classbase and one room fit for a purpose, an environment of imbedded learning. Examples would be one room built to explore the acoustic and creative properties of sound; another designed as a visual aid to comparable methods of computation and measurement; a third to aid and develop language skills.

Although designed for a purpose, history can be taught in the maths room, art in the nature room, music in the language room, and other year groups can be timetabled to use the specialised rooms when their “home” classes are elsewhere. The whole school is designed as a learning prototype, offering multiple opportunities to engage with different organisational and teaching methods, utilising or modifying the facilities and spaces. It does not impose directions or solutions, but offers them as options and developments.

The Design of the Houses

Within the general structure of the school we conceive of the "Houses" or Classbases as distinct shapes and forms. Connections and routes through the school are implied in both its plan form and that of its vertical elevation. The architecture is developed through "geometry of information". This new language of learning will project ideas, concepts and data through the fabric of the new school building. Routes will tell stories, layout will suggest systems of measurement and specific spatial relationships will inform you about your local / global environment. Facts, figures, phrases and fables will be incorporated into the structure with historical “site specific” text and information.
From the original North Ayrshire Experiment - School Book 2000

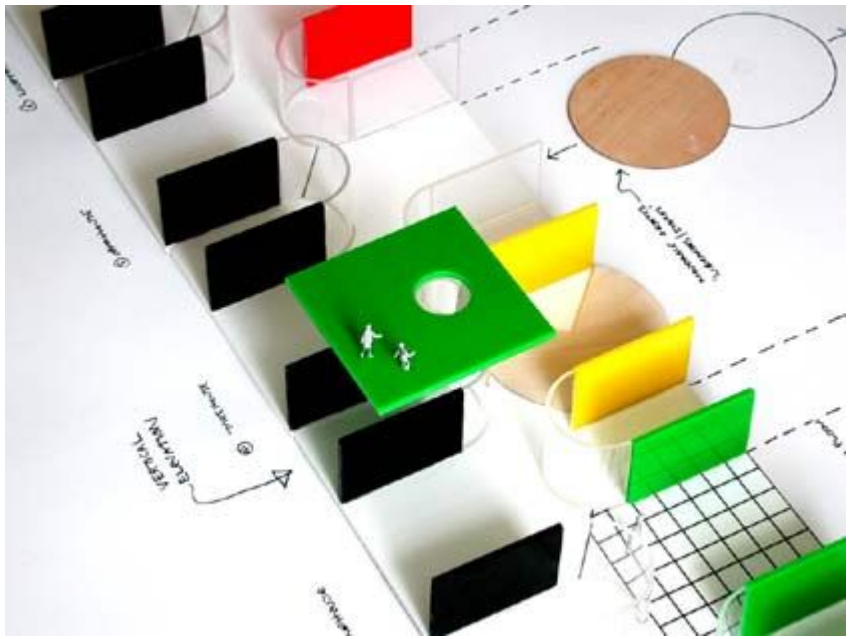


Sample 'House' above with Model 4 shown below (See appendix for full set of 'houses')

Dalry Model 5

We are investigating a number of potential fabrication and prefabrication processes with which to construct the "houses". Using local expertise we hope to fabricate high specification education buildings which reflect the genuine aspirations of the children and parents, the school and the Local Educational Authority for forward looking educational models which take calculated risks and develop new physical environments for the stimulation and pleasure of children.

Using the process of specialised consultation and continuous questioning of "traditional" building and procurement methods, we hope easily to offset the costs of additional inherent features against more efficient and environmentally sustainable approaches.



Model 5 - Large scale (1:50) Classroom modules mocked up to explore spatial relationships

plan and elevation drawings - Bruce McLean 2003

Dalry Model 6 - The Seven "Houses"

Counting House
The Counting House is conceived as a three-dimensional graph inhabited by pupils and staff. It's dimensions are clearly indicated as X, Y and Z axis. The room is a place for the measurement of data and information: from the size of a child, their body temperature, and the quality of the air that they breathe, to the measurement of the microscopic. The room acts as a 3-dimensional display for this information employing passive and active technologies. Passive display technologies include magnetic walls for the easy repositioning of data, and the inscription of measurement and number in both floors and walls. The active display technology will include built-in loudspeakers and the use of LED Displays such as SMARTSLAB, which would create a linear display on the walls and floor.

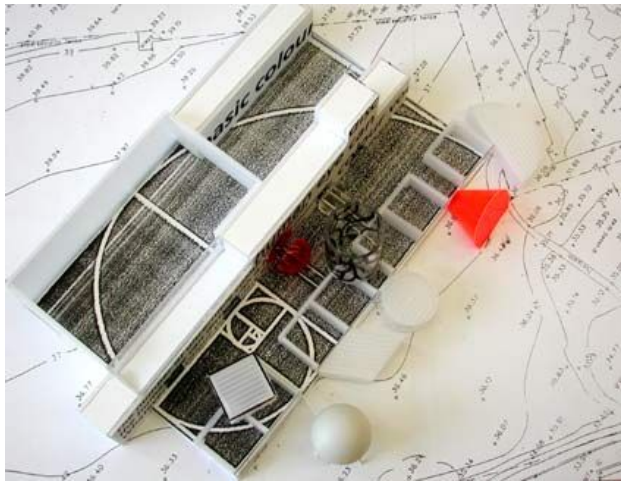
Lighthouse
The lighthouse is a room for the exploration of light and colour in the environment. The lighthouse contains built-in devices for the refraction and reflection of natural light. The room reveals solar geometry and shadow casting through its physical form. The technology is passive and can be operated by the pupils through a series of mechanically controlled apertures and screens.

Roundhouse
The Roundhouse is a circular room with a rotating floor. Inspired by George Bernard Shaw's rotating study and the turntables of Victorian train sheds. This slow moving platform can be used as a clock, a calendar and an orrery, guiding a child through the changes that occur in a day, a year and a light-year.

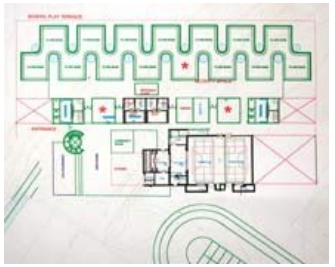
Form Room
The Form room explores the architecture of complex geometry with a composite fabricated form describing the interior space of two interlocking geometries. These building sized building blocks use Frobel's shape and colour pedagogy to make visible the naturally occurring geometries of the world around us.

Opera House
A classroom theatre in the heart of the school, with moveable proscenium arch, stage, scenery and props. The Opera house is a place of many disciplines and skills, which combine to present language as drama. The Opera House presents a stage to the schools main circulation space with sliding/folding doors which provide the scenery flats, a lighting rig and three moveable prop stores disguised as scenery.

Tree House
The Tree House is equipped to explore the natural environment. The Tree House extends both above and below ground level, from the "treetops" down to the "roots". The "treetops" takes the form of a miniature roof garden with Insectarium, the "roots" as a cutaway diagram revealing the structural elements of the school building. The iconic image of the "treehouse" is employed to serve as a "lookout" tower for the school in the tradition of Patrick Geddes the celebrated 19thCentury biologist and town planner.



Model 6 showing the "Special 7" classbases pulled out from the southern facade.
Below NAC development plan

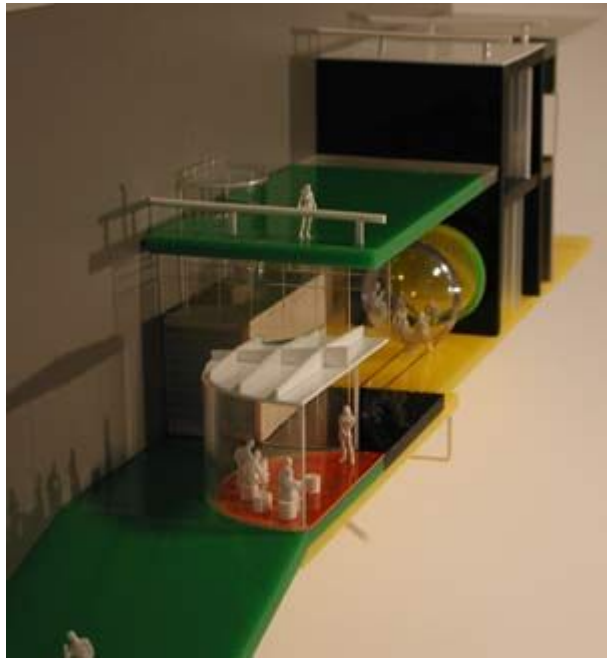


Dalry Model 6 - The Seven "Houses" continued

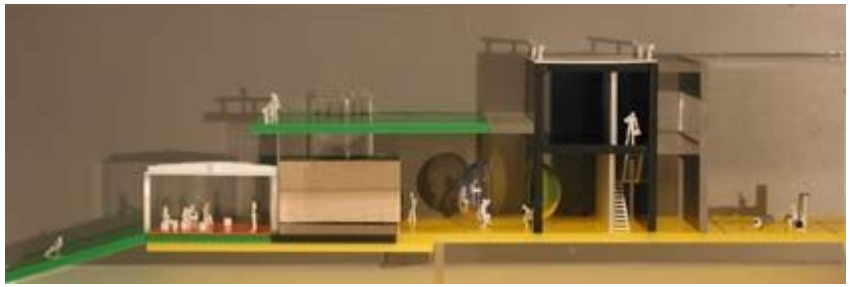
Sound House
The sound house is an informal theatre for the school, a place for presentation and performance. A controllable acoustic environment is created and its ease of operation is balanced with its self-illustrating physical forms. A series of moveable acoustic walls is specified for both the attenuation and propagation (reflectance) of sound. The function of such a space is to enable quiet conversation, facilitate musical performance and act as a venue for visiting speakers. This installation of formed 3-dimensional surfaces does not require any power or sound systems merely the repositioning and alignment of custom-built panels.

The 3-dimensional library
The celebration of work, personal industry and ideas will be taken seriously, in a permanent area for testing and display of group energy, individual obsession and application. The "Library" is an extra "house" or classbase in which to house exhibitions and displays of the work of the school. A helical ramp defines the space, providing a useful vantage point as well as a route for the presentation of work. The 3-dimensional library is a forum for new work and will provide excellent lighting, cabinets, plinths and projection facilities to promote and encourage the regular expositions of the endeavours of the school.

The Spine
The functional central spine of the school runs parallel to the learning houses, and also incorporates pull-out storage "rooms" for specific activities such as cooking, wet activities, storytelling or drama. These can be unfolded into the central space between the spine and the learning houses, creating flexible areas of positive and negative space inside and between all three areas.

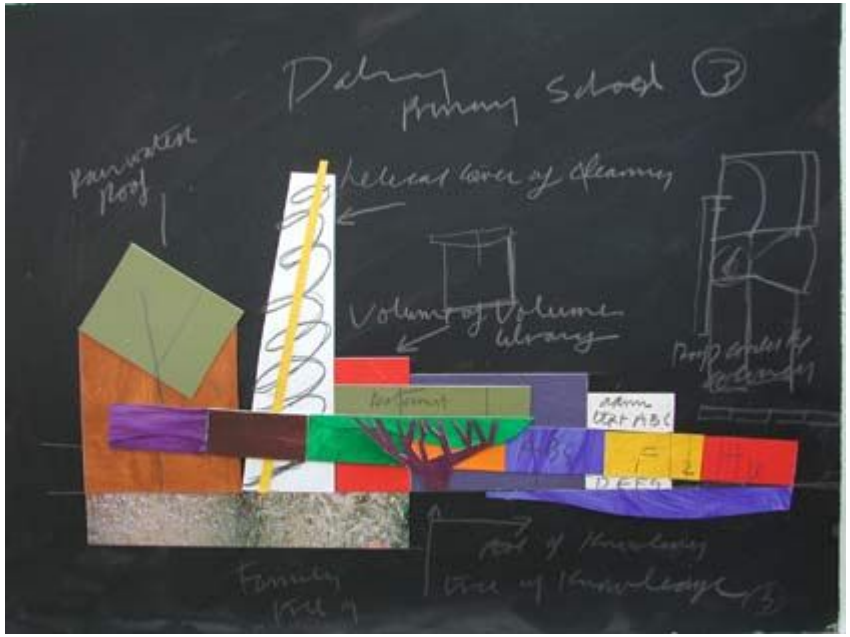


Model 7 - Sectional model showing the configuration of spaces, inside and out



School Operation and Evaluation

Given the innovative and experimental nature of the project, and its potential impact on the wider national field of education design, it is important that the longer term uses and effects of the design are studied in depth. A five-year programme of evaluation is included in the project, designed to inform and extend future developments in education design. This evaluation should also extend to the day to day operations of the new structure and actively involve members of the design team after the perceived “completion” of the project. This may both ameliorate the teething problems routinely encountered in any new large building, and give greater insight to the design team as to which elements are successful and which less so. To that extent we stress the importance of risk taking without accepting failure. This evaluation should lead to improvement and necessary change.



Elevation - Preparatory sketch, Dalry Primary School - Bruce McLean 2003

Furniture, Fixtures and Fittings

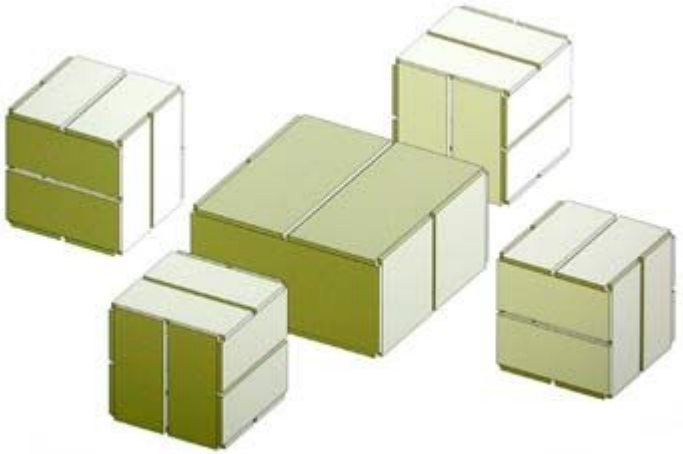
Sitting, running, jumping, standing, reading, writing, singing, shouting, dancing, moving, thinking, making, building, sticking, gluing, painting, drawing, counting, eating, drinking.

How can the furniture and fittings of a new school actively benefit their physical environment and support the process of learning and a child's physical and mental development.

Human Support System = Chair
Platform for a conversation = Table
see Victor Papanek and Frederick Kiesler

If the North Ayrshire Experiment is to be an exemplary model of current good practice and forward thinking, then the relocatable artefacts we call furniture must be invested with as much thought as the environment in which they sit. Accepting that safety is important and that this furniture must be replaceable, this aspect of the project will also have wider application than just to Dalry.

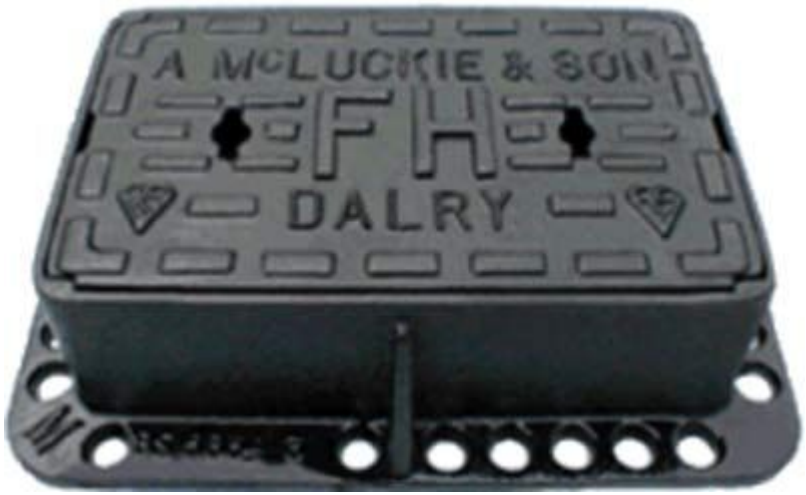
A seat for restless children, providing eight more positions than sitting.
Designed by Steven Lynch (from Victor Papaneks - Design for the Real World 1971)



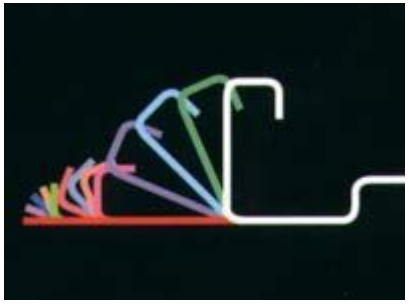
Modular Furniture by Artist Gary Woodley 2003

Local Knowledge & Specialist Fabricators

http://www.arthurmcluckie.com
Arthur McLuckie & Son was founded in 1967 as a specialist producer of road castings. Since the early days the firm has expanded, developed from using cast Iron to ductile Iron, and widened the range of manufactured products to include decorative ornamental Iron products.
http://www.johnstone-castings.co.uk
Johnstone Castings & Engineering Ltd., founded in 1965 are a leading supplier of light alloy castings.
http://www.ayrshire.co.uk
AyrFrame represents a major advance in technical performance, with a high fire resistance, low sound transmission and excellent thermal qualities, coupled with the ability to build up to eight storeys without a separate structural frame.
http://www.cetec.demon.co.uk
CETEC Consultancy Ltd and CETEC Analytical Services Ltd are independent companies providing professional consultancy services in innovative engineering and technology
Examples of such structures include those utilising advanced fibre reinforced polymers (composites), those which are complex in shape and form, those which seek minimum weight and particularly those which do not fall within accepted design codes.



Local products including A. McLuckie (Iron Foundry) Ayrshire Metals (cold-rolled steel sections) and Johnstone Castings.



CETEC Consultancy - Large GRP "pods" for Victoria House, Bloomsbury 2003

The School Book

The book is an attempt to illustrate the cooperative efforts of the North Ayrshire Project. Started in 1995 the project has been a collaboration between The local Education Authority under the guidance of its head of Service James Leckie, NAC technical services (specifically David Watts, Irene Farish and Peter Togneri), Ginkgo (formerly) Independent Public Arts (Tom Littlewood and Linda Mallett) with Bruce McLean, William Mclean and Mel Gooding acting as external consultants to the local authority.
The aim of the project was the fabrication of a new brief for the design of a primary school.

The project began with a set of drawings by Bruce McLean, speculating on the qualitative form of a new place of learning. This "not why, but why not" proactive approach has been continually reciprocated by James Leckie, his only caveat being that the speed of delivery of these illustrated thoughts and plans be measured in accordance with public consumption. (This caution, an anathema to McLean has been bourne out and the collaboration with this enlightened local authority continues).

The book is not a manual for the design of a primary school, but an illustration of a set of approaches to the formation of a school for children between the ages of 5-12. The proposals include an implicit pedagogic approach and the identification of key components for the assembly of a place of learning predicated on invention and discovery. Consideration is given to the size, form and material construction of key components, their physical relationship to each other, such as scale and proximity and a hierarchy of serviced use (wet or dry, clean or dirty, short-term, long-term etc.)

The development of the book has been in collaboration with artist John Walter and writer/critic Mel Gooding.

Prototype book pages prepared by John Walter with Bruce McLean and Will McLean 2003

Appendix 1 - Primary Space June 2002 – Feedback

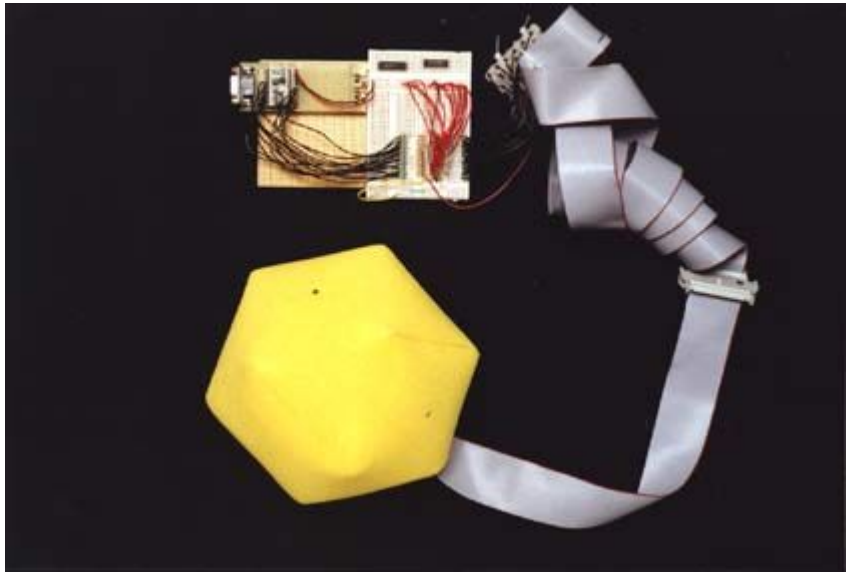
There is a lot to be said for change. In March and May 2002 we spent time with pupils at Mayfield and Dalry Primary School in North Ayrshire.
The structure of each occasion was quite different, which is necessary to avoid formulaic response. In each case the schools had agreed to organise one form of students (approximately 26-30) who would work with us over a two-day period. At Mayfield their teacher was present, but at Dalry there were no teachers in attendance, which with no disrespect to the excellent teaching staff was a positive benefit.
In each case the days were punctuated by the school bell for break and lunch but that is where the normal routine ended.
The workshop at Dalry was directed by Andrew Cowie who developed a performance based on the imminent move of the school and all of the emotional and physical manifestations that it may have. What was striking about the way Andrew worked was the pace and control of time. If indeed there had not been a performance it would not have mattered. Over the two days with an almost entirely non-verbal syntax, children made pictures without words, created space out of thin air and worked and reworked these narratives through physical movement (sometimes fast, sometimes slow). One positive benefit of these types of events is simply change. For the duration of the workshop routine is distorted and the demands on pupils quite different to their typical timetable. Visiting personnel such as ourselves are a novelty and again this places new demands on students. I hope that the workshop was well received. I am glad that parents came to see the performance on Tuesday afternoon.
The question as to what we as a design team might ascertain from such events, and the tangible benefits to pupils may not be as complicated as first thought.
The question as to what we as a design team might ascertain from such events, and the tangible benefits to pupils may not be as complicated as first thought.

- We have experienced physical movement around a primary school, through the actions of the children
- The physical properties of a school space are immediately realised when ran around, and shouted in.
- The connection between activities is manifestly not manifest at present in the case of both Dalry and Mayfield.
- The case for the “benefits of change” are made, but how variety and difference are incorporated into the design of a school are waiting to be tested.
- The chance to spend time in existing school buildings has highlighted many interesting design challenges from function to fabric to form to furniture.
- Students have the opportunity to establish new professional relationships with adults, through an application of their talents that may be new and unfamiliar to them.
- Past history of pupils is not applicable here, and these events give everyone a chance to do good work and be taken seriously.

It is not possible to plan spontaneity, but the workshops create unplanned time, which is not conventional break-time or a structured class. The time created provides a useful diversion for pupils and is a rich reasearch source for artists and designers. The outcomes in this respect are valuable whether these events appear to work or not, by placing us back in school whilst imagining new environments for learning.

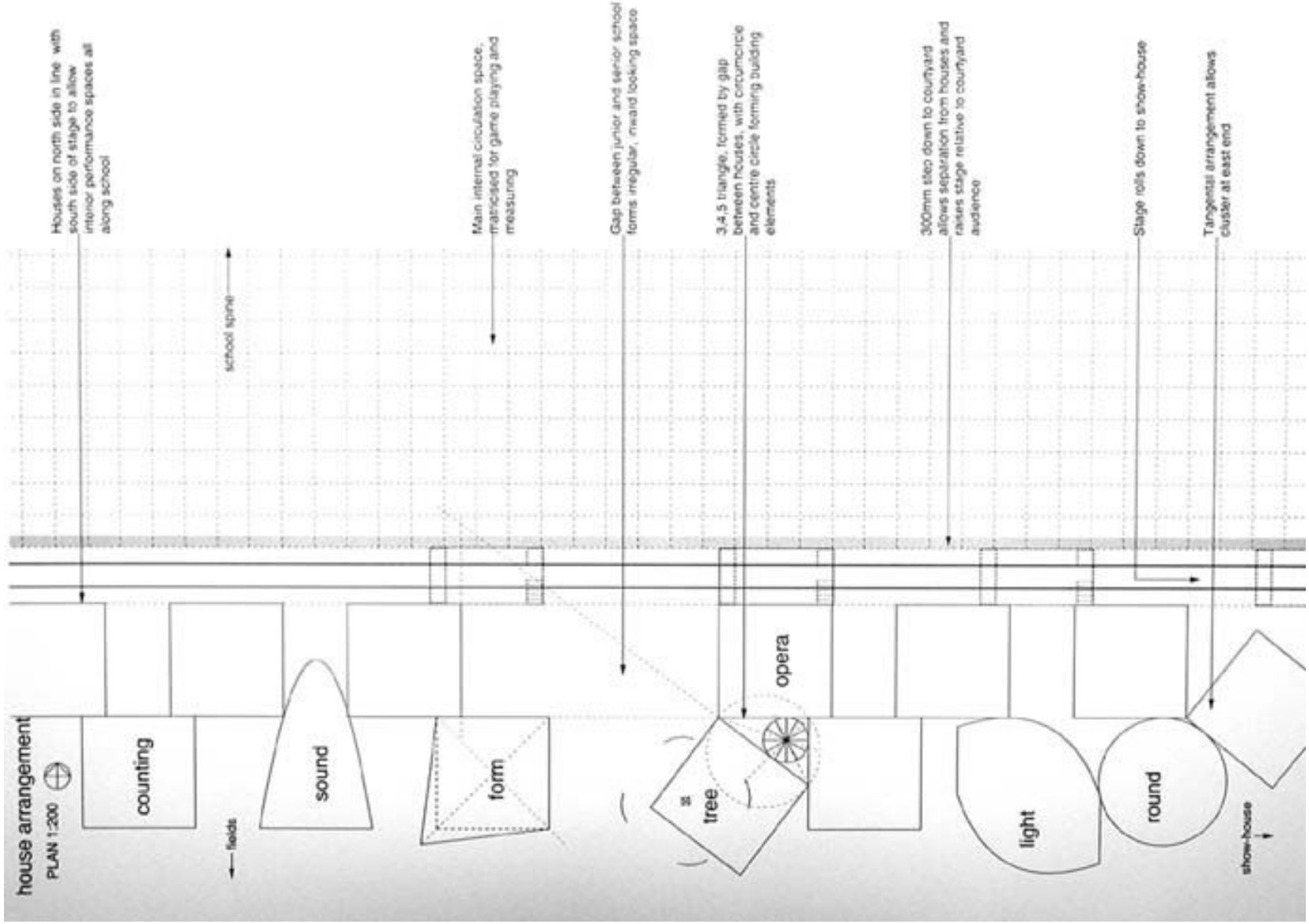
Appendix 2 - Tools and Instruments - Technology in Schools

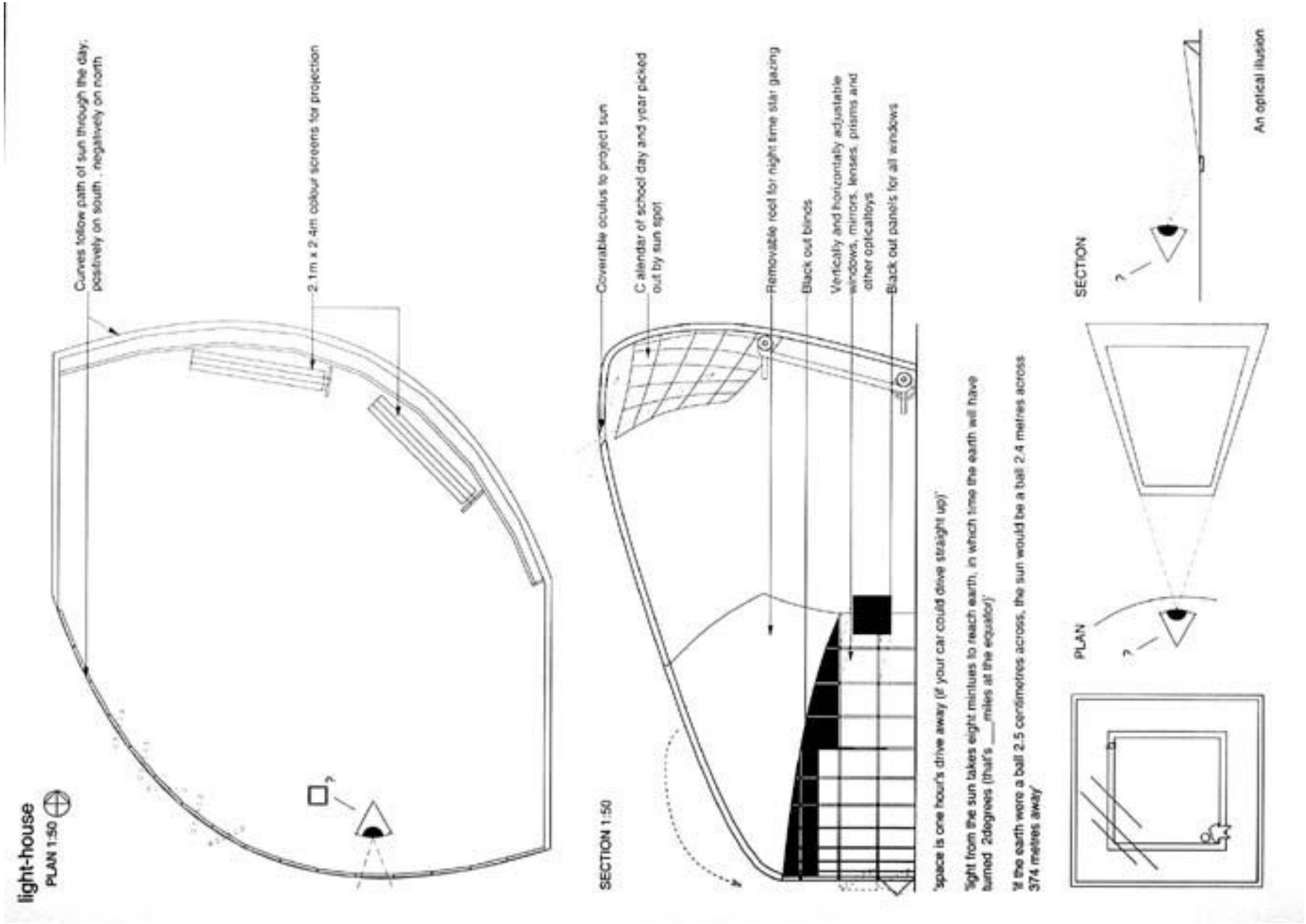
Current government commitment to technology in the classroom requires a creative approach to implementation that does not merely put computers in schools; it could also put the child into computers. If creativity at school is now a luxury, then we must extend intuitive creativity to the virtual world and its navigation. These tools are designed to be used by children from the age of 5.
The premise for "Digital Putty" was the notion that we were frustrated with the non-spatiality of the computer, which we considered needs changing in order to extend the kind of usefulness and connectedness they could exhibit. In 2000 Stefan Kueppers, Andrew Whiting and William McLean initiated a research project to further develop the brief and assess and test the technology involved.
The Digital Putty (DP) project is primarily aimed at developing new interfaces for the virtual worlds within which we now spend so much time. We have created a number of models (some working) of new design tools and toys, which are linked to the virtual environment. These devices are designed to create a more stimulating dialogue between the virtual world and the computer interface which is currently limited to the Keyboard / Mouse / Joystick etc.
These new tools must be reconfigurable, durable and inexpensive. As an integral part of the project, new virtual environments must be created and explored in conjunction with the interface.
We are perfectly capable of spatially negotiating and manipulating physical objects with our own hands. We suggested that one could design a kind of digital clay or putty, which could extend our visual and tactile skills in a much more sophisticated way than the channelling through keyboard, mouse and screen.
We considered the potential of a "digital putty" which was conscious of being manipulated and being able to communicate its transitions to other instances of "digital putty" elsewhere. Morphological change and gesture could be spatially replicated and communicated in an immediate tactile fashion to someone else, somewhere else with the possibility of a bi-directional real-time tactile conversation.
The project has developed in particular reference to primary level education, which seemed to present the most testing, but potentially exciting results.
There are many problems with computers in schools not least the negative physical affects on ones posture, spending large amounts of time sitting immobile in front of a fixed screen. We envisioned a new type of computer, truly portable and inexpensive and capable of being built or at least customised. This type of technology already exists within products like Lego Mindstorms, where inexpensive, small and battery powered microprocessors are used to sense heat, light and movement and control a similar range of actuators.

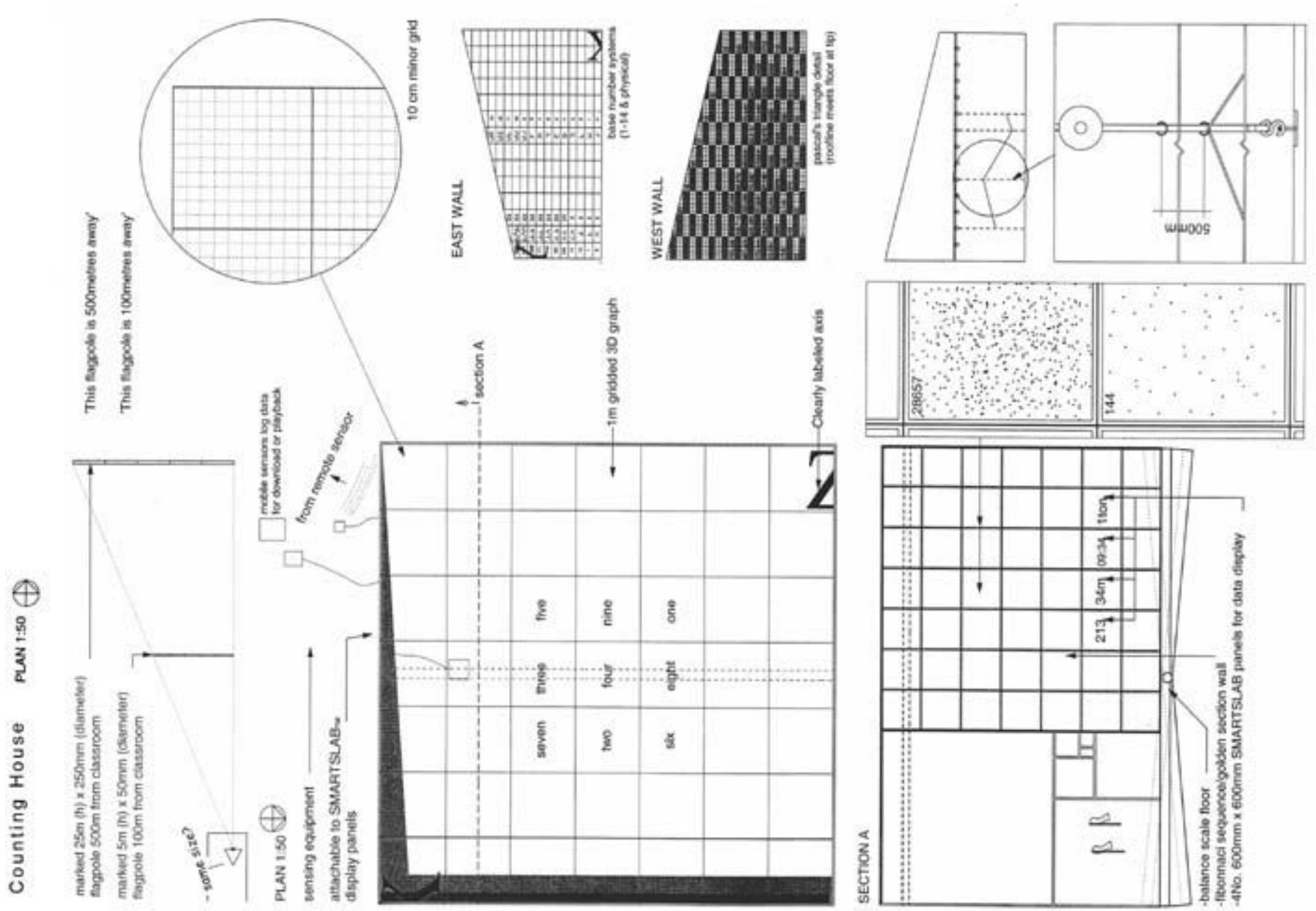


A working prototype of "Digital Putty" a new computer interface for children W. McLean with S. Kueppers and A. Whiting

Appendix 3 - Form Rooms Concept Sketches
House Arrangement

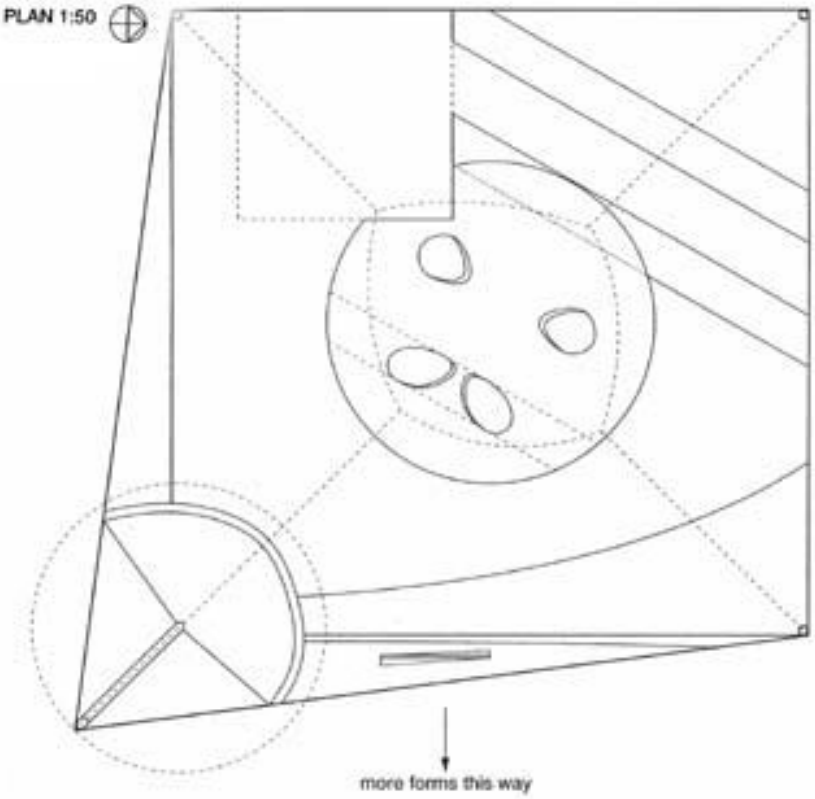



light-house
PLAN 1:50
Curves follow path of sun through the day; positively on south , negatively on north
2.1m x 2.4m colour screens for projection
SECTION 1:50
Coverable oculus to project sun
C alendar of school day and year picked out by sun spot
Removable reel for night time star gazing
Black out blinds
Vertically and horizontally adjustable windows, mirrors, lenses, prisms and other opticaltoys
Black out panels for all windows
'space is one hour's drive away (if your car could drive straight up)'
'light from the sun takes eight minlues to reach earth, in which time the earth will have turned 2degrees (that's ___miles at the equator)'
'if the earth were a ball 2.5 centimetres across, the sun would be a ball 2.4 metres across 374 metres away'
SECTION
PLAN
An optical illusion

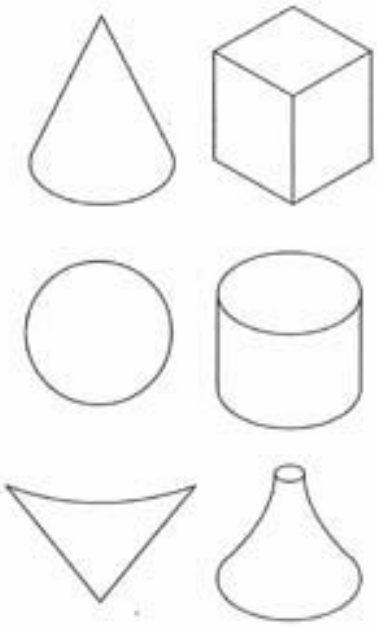

Counting House
PLAN 1:50
marked 25m (h) x 250mm (diameter) flagpole 500m from classroom
marked 5m (h) x 50mm (diameter) flagpole 100m from classroom
- some size?
PLAN 1:50
sensing equipment
attachable to SMARTSLAB™ display panels
mobile sensors log data for download or playback
from remote sensor
'This flagpole is 500metres away'
'This flagpole is 100metres away'
10 cm minor grid
section A
1m gridded 3D graph
Clearly labeled axis
seven
two
six
three
four
eight
five
nine
one
EAST WALL
base number systems (1-64 & physical)
WEST WALL
pascal's triangle detail (roofline meets floor at tip)
500mm
28857
144
SECTION A
213
34m
09:34
11on
-balance scale floor
-fibonnaci sequence/golden section wall
-4No. 600mm x 600mm SMARTSLAB panels for data display

form room

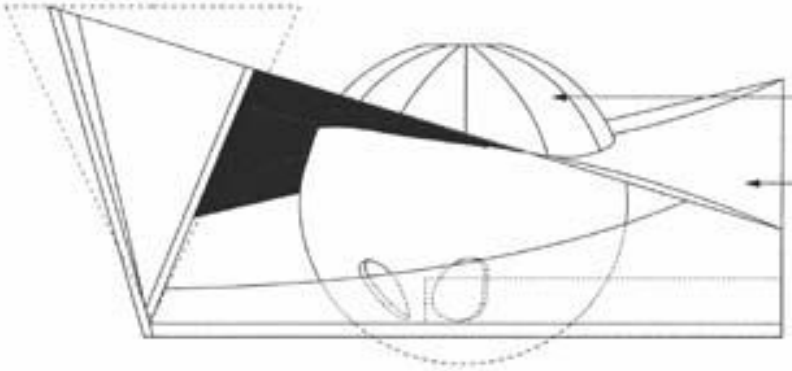
PLAN 1:50



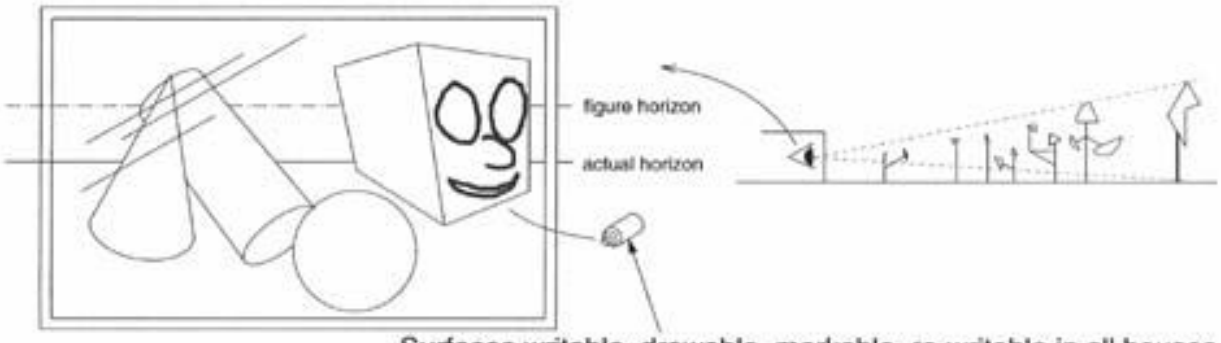
Simple platonics and problematic solids and negatives intersect to reveal spaces, edges and points



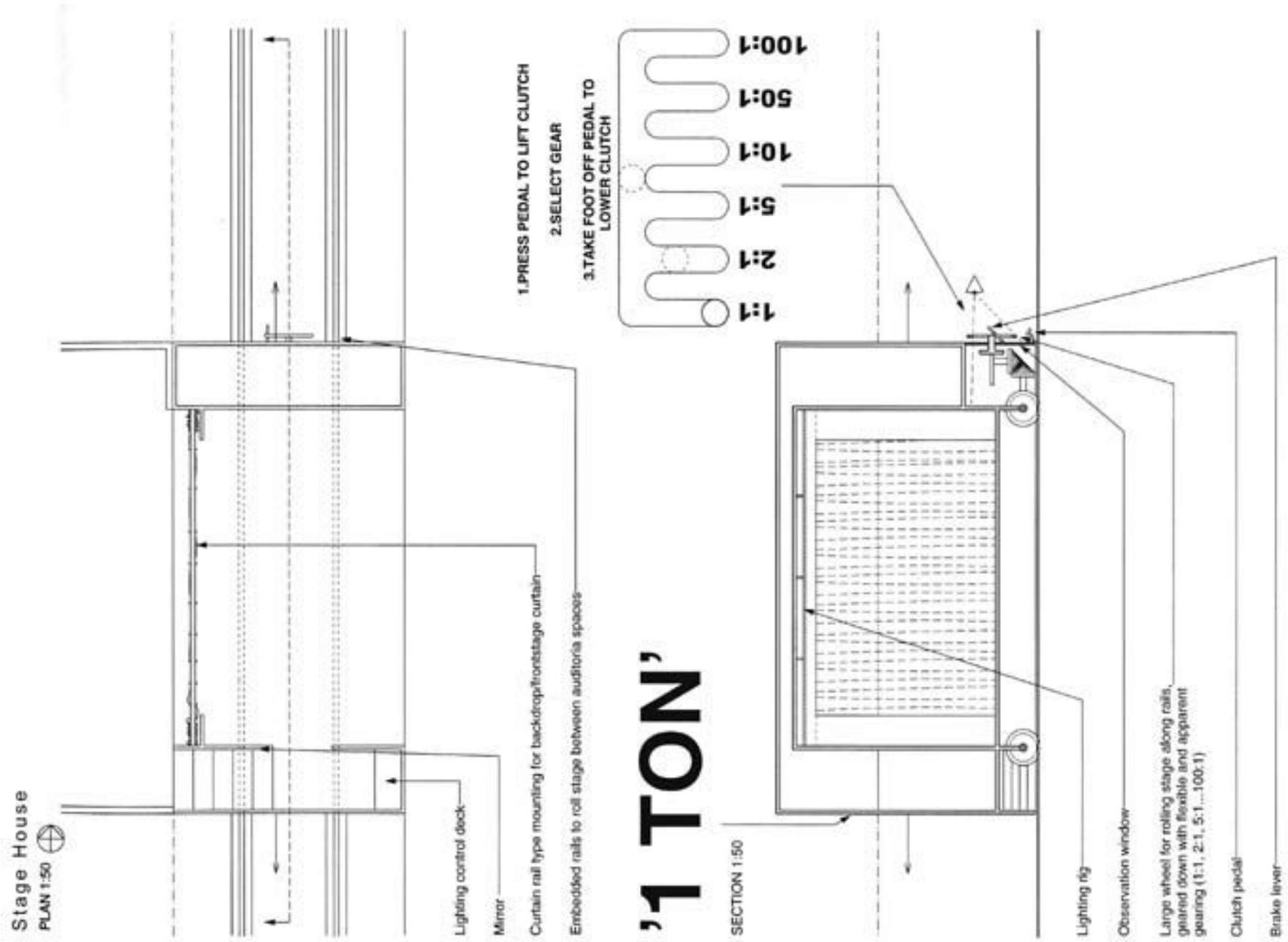
SOUTH ELEVATION

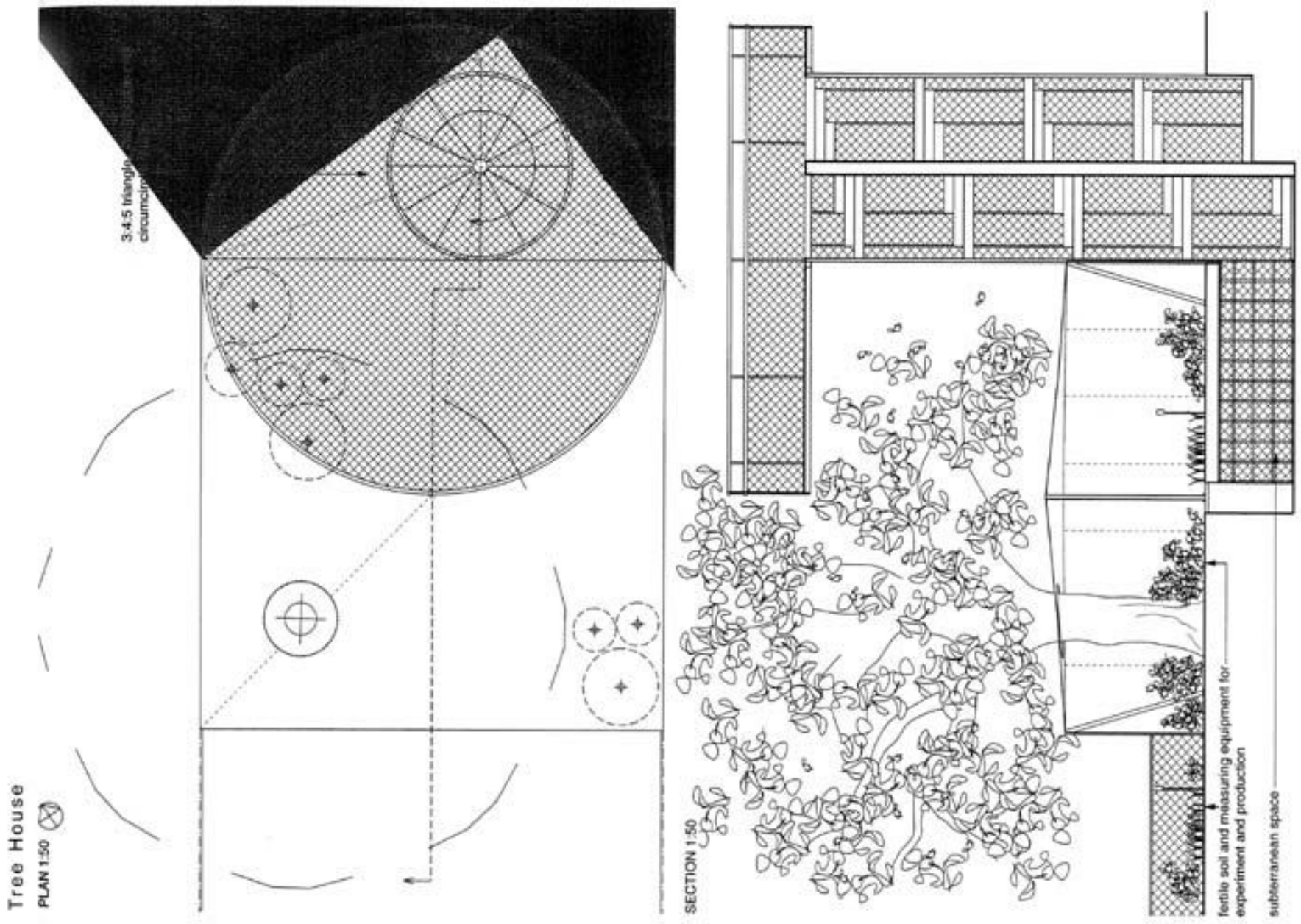


More forms



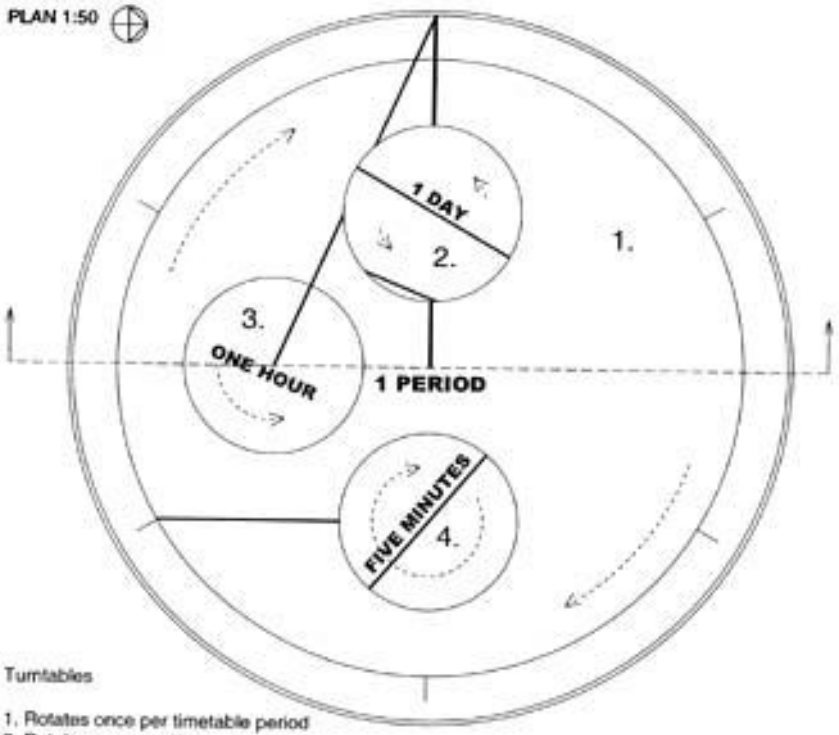
Surfaces writable, drawable, markable, re-writable in all houses


Stage House
PLAN 1:50
Lighting control deck
Mirror
Curtain rail type mounting for backdrop/forestage curtain
Embedded rails to roll stage between auditoria spaces
1.PRESS PEDAL TO LIFT CLUTCH
2.SELECT GEAR
3.TAKE FOOT OFF PEDAL TO LOWER CLUTCH
100:1
50:1
10:1
5:1
2:1
1:1
'1 TON'
SECTION 1:50
Lighting rig
Observation window
Large wheel for rolling stage along rails, geared down with flexible and apparent gearing (1:1, 2:1, 5:1....100:1)
Clutch pedal
Brake lever


3:4:5 triangle
circumcircle
Tree House
PLAN 1:50
SECTION 1:50
fertile soil and measuring equipment for experiment and production
subterranean space

Round House

PLAN 1:50

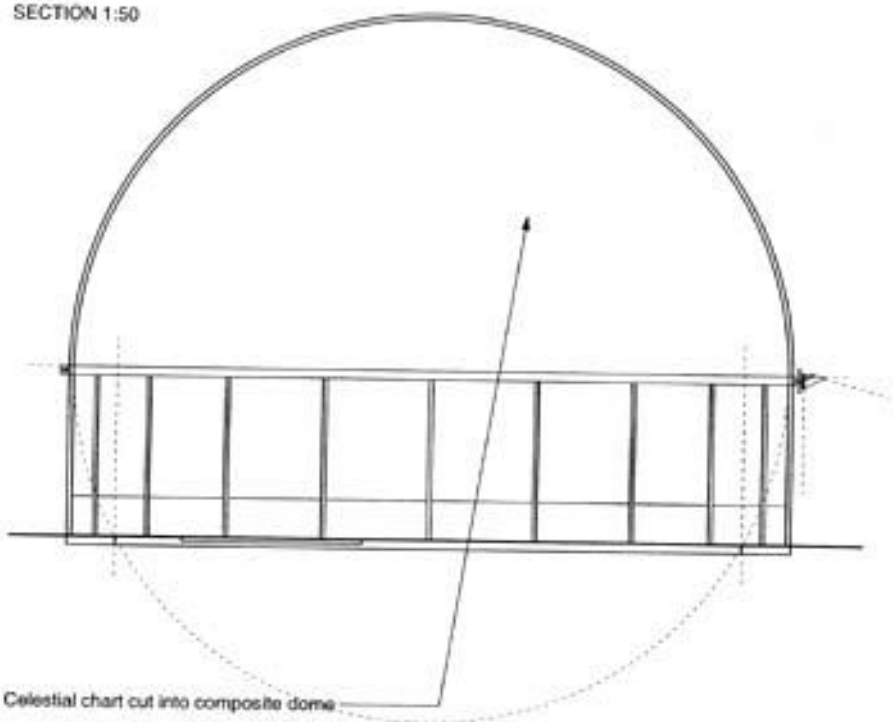


Turntables

1. Rotates once per timetable period
2. Rotates once per day
3. Rotates once per hour
4. Rotates once per five minutes

Turntable graphics (geometrical motif) come together at the end of each school day

SECTION 1:50



Celestial chart cut into composite dome

(Timespace) form of house refer to celestial geometry and enlightenment mapping thereof

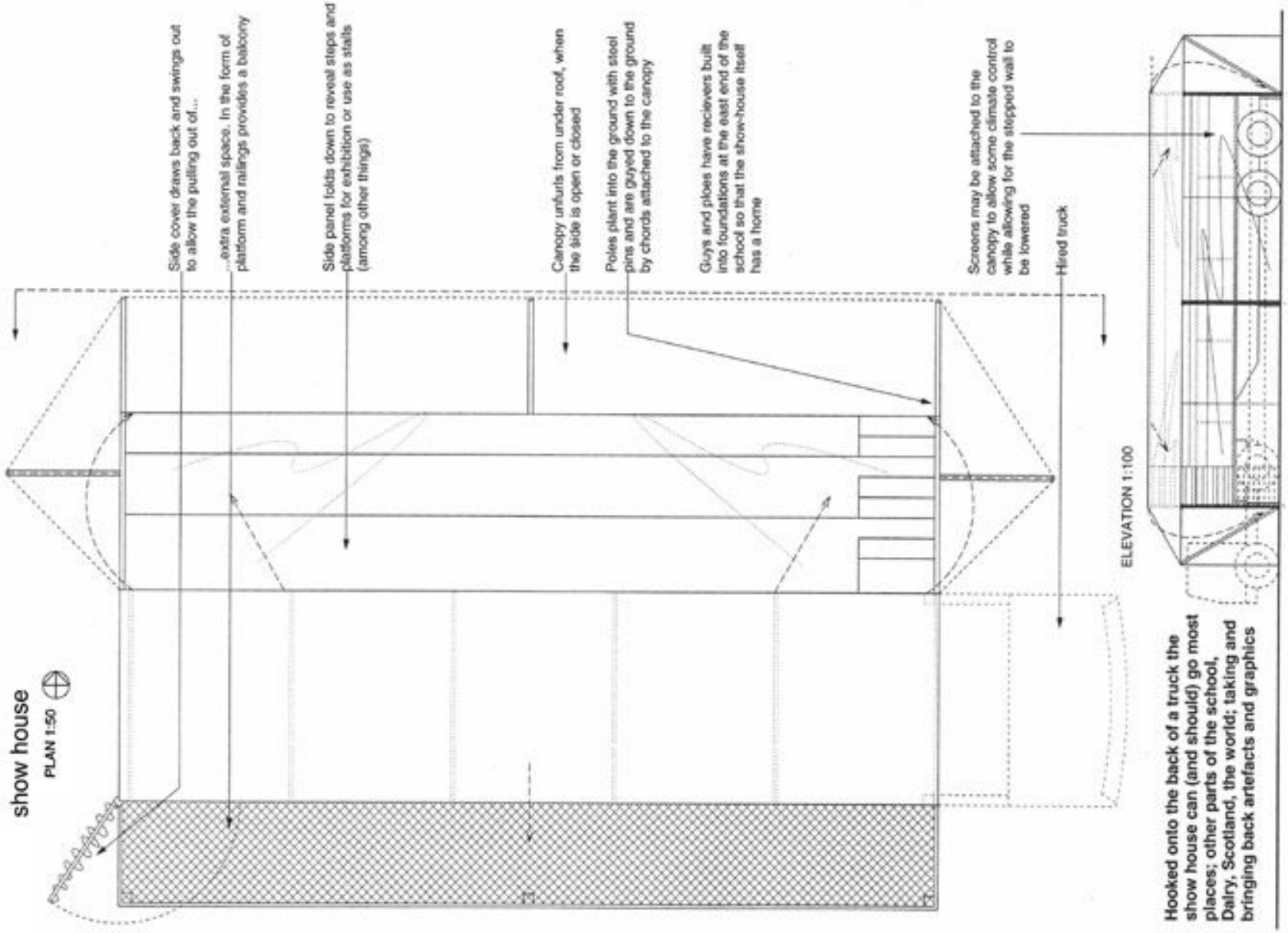
PLAN 1:500

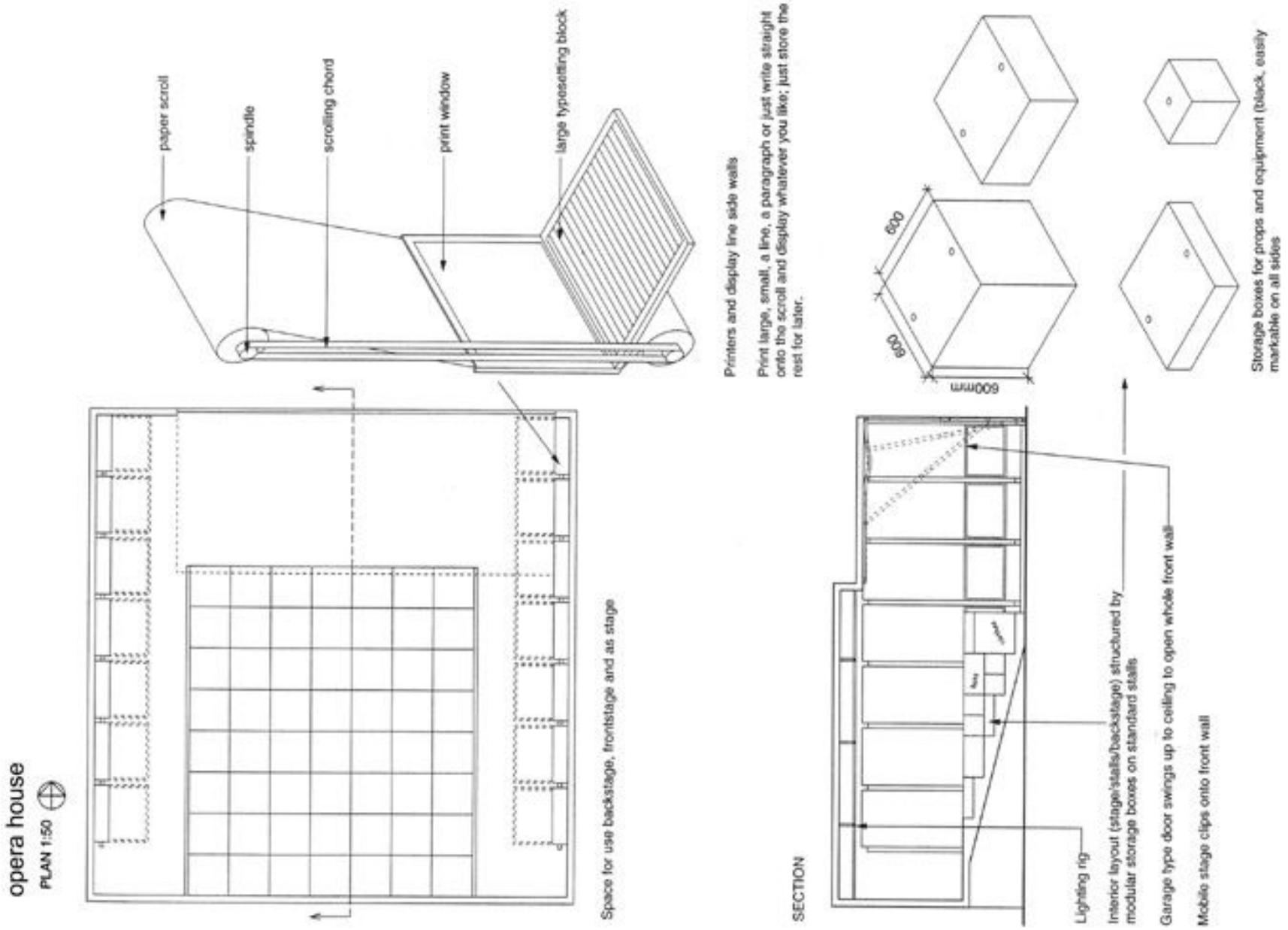
A night time second hand of light

Projected out to a distance whereby it is travelling as fast as the fastest primary school leavers can run

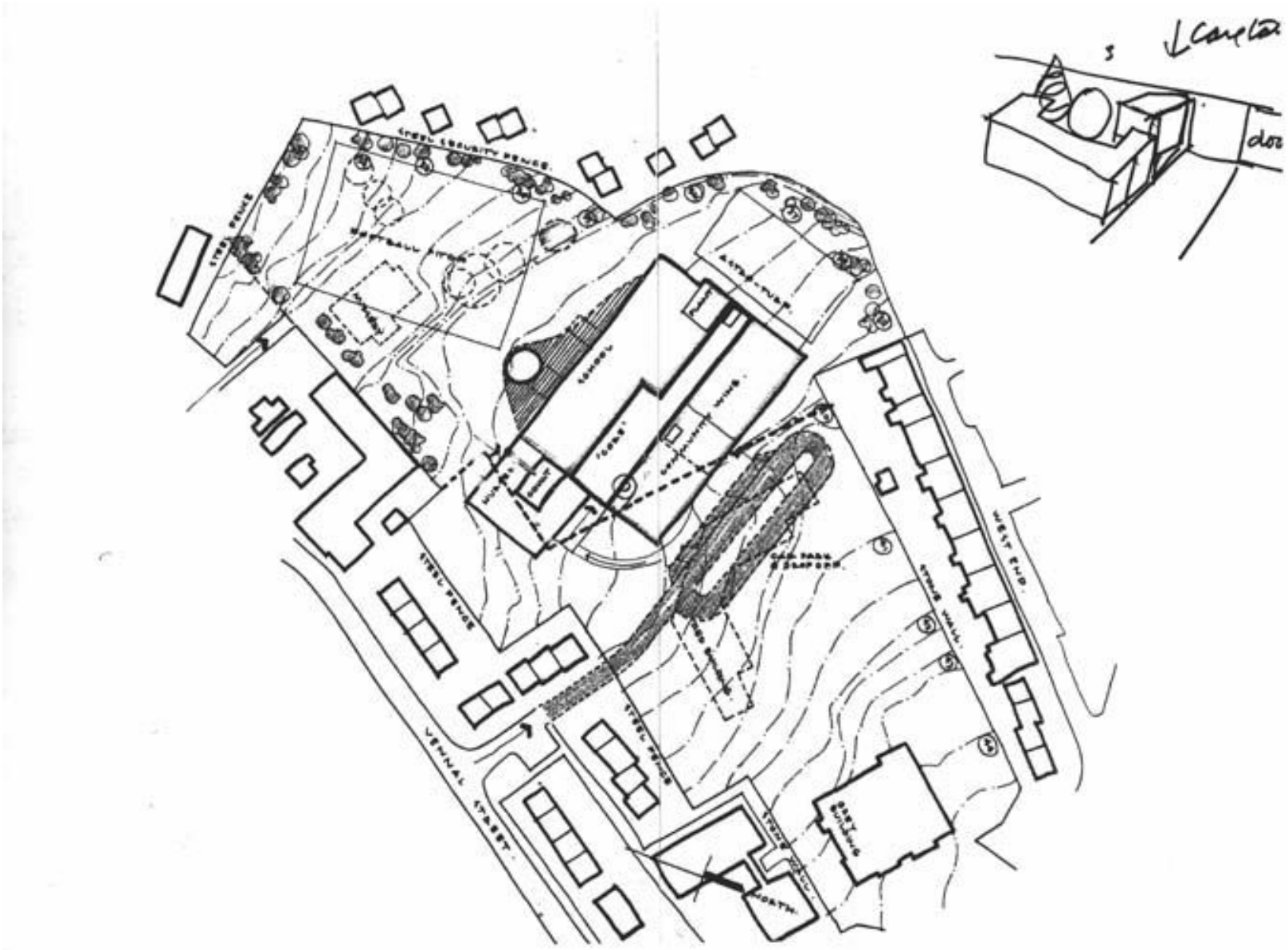
Or to a distance that the fastest man on earth can run (cf. sound house)

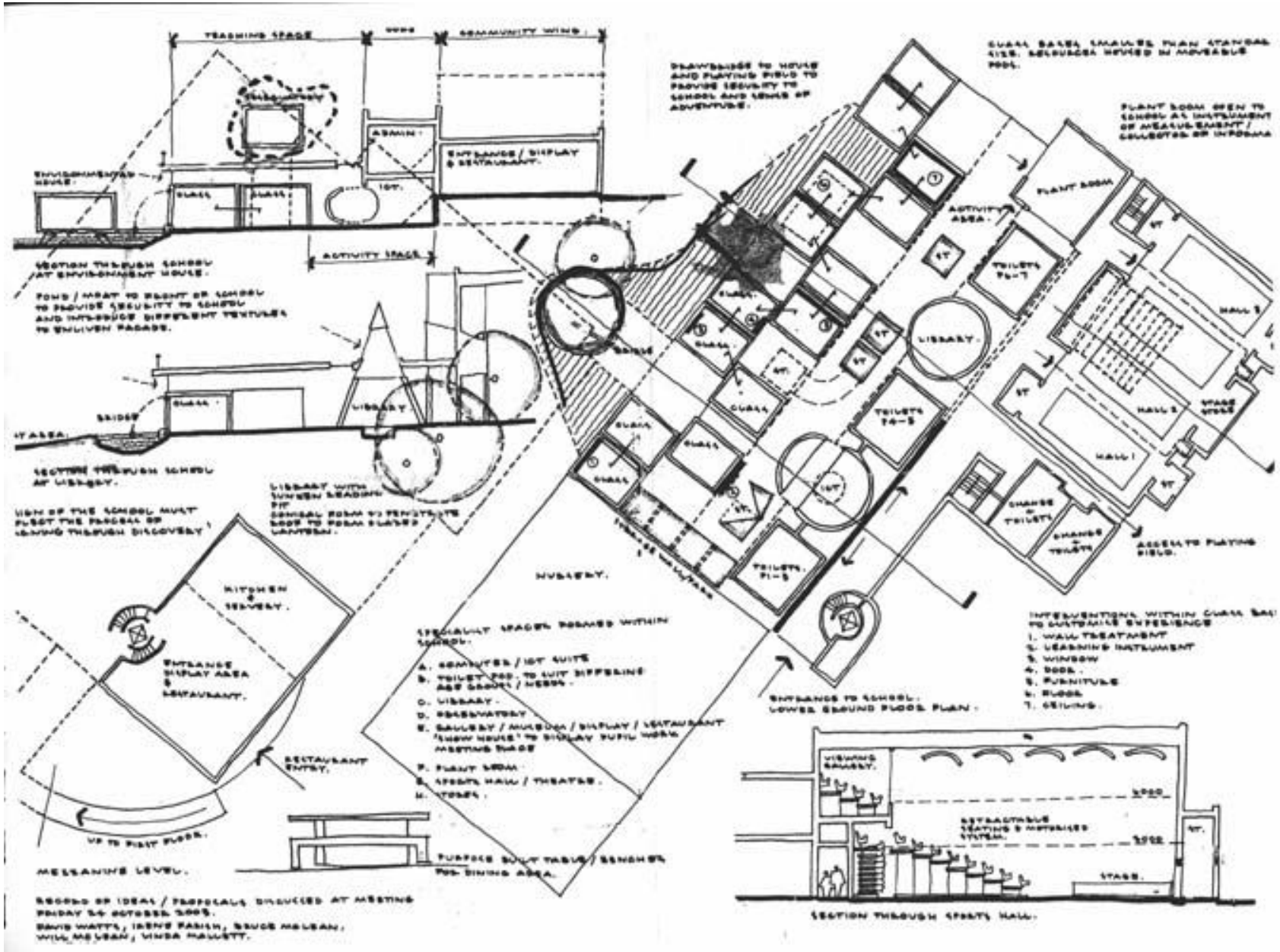
Markings on field to accompany

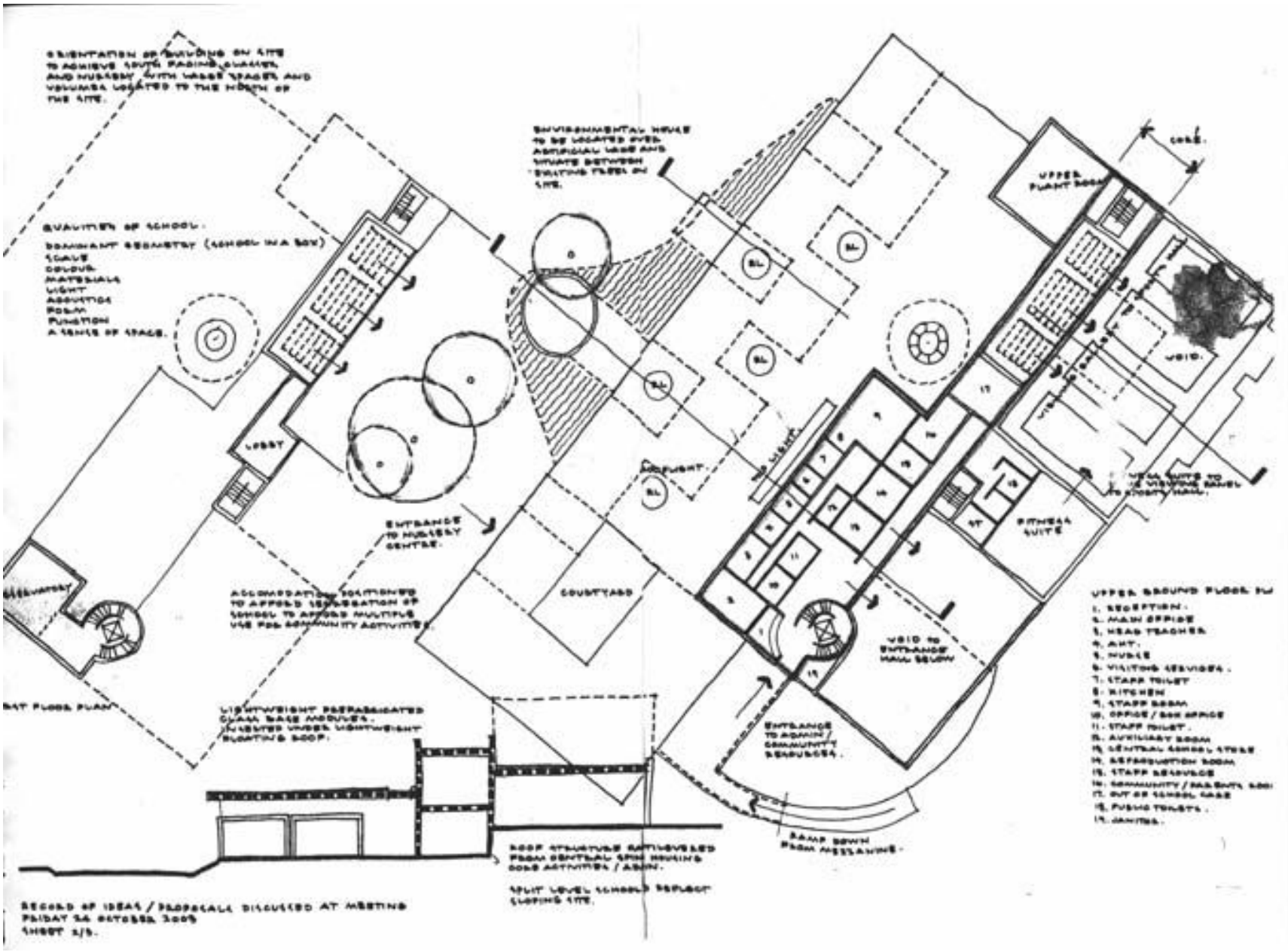

Side cover draws back and swings out to allow the pulling out of...
...extra external space. In the form of platform and railings provides a balcony
Side panel folds down to reveal steps and platforms for exhibition or use as stalls (among other things)
Canopy unfurls from under roof, when the side is open or closed
Poles plant into the ground with steel pins and are guyed down to the ground by chords attached to the canopy
Guys and poles have recievers built into foundations at the east end of the school so that the show-house itself has a home
Screens may be attached to the canopy to allow some climate control while allowing for the stepped wall to be lowered
Hired truck
show house
PLAN 1:50
ELEVATION 1:100
Hooked onto the back of a truck the show house can (and should) go most places; other parts of the school, Dalry, Scotland, the world; taking and bringing back artefacts and graphics


opera house
PLAN 1:50
paper scroll
spindle
scrolling chord
print window
large typesetting block
Space for use backstage, frontstage and as stage
Printers and display line side walls
Print large, small, a line, a paragraph or just write straight onto the scroll and display whatever you like; just store the rest for later.
600
600
600mm
Storage boxes for props and equipment (black, easily markable on all sides
SECTION
Lighting rig
Interior layout (stage/stalls/backstage) structured by modular storage boxes on standard stalls
Garage type door swings up to ceiling to open whole front wall
Mobile stage clips onto front wall

Appendix 4 - Plan Development - Latest




TEACHING SPACE
COMMUNITY WING
ADMIN
ENTRANCE / DISPLAY & RESTAURANT
ENVIRONMENTAL HOUSE
ACTIVITY SPACE
SECTION THROUGH SCHOOL AT ENVIRONMENT HOUSE.
POND / MOAT TO REAR OF SCHOOL TO PROVIDE SECURITY TO SCHOOL AND INTRODUCE DIFFERENT TEXTURES TO ENRICH PASSAGE.
LIBRARY
BRIDGE
ACTIVITY AREA
SECTION THROUGH SCHOOL AT LIBRARY.
VIEW OF THE SCHOOL MUST FORM THE FOCAL OF LEAVING THROUGH DISCOVERY
LIBRARY WITH SUNKEN READING PIT
SKYLIGHT ROOM TO PENETRATE ROOF TO FORM GLAZED LANTERN.
KITCHEN & DELIVERY.
ENTRANCE DISPLAY AREA & RESTAURANT.
RESTAURANT ENTRY.
UP TO FIRST FLOOR.
MEZZANINE LEVEL.
NURSERY.
SPECIALIST SPACES PLANNED WITHIN SCHOOL.
A. COMPUTER / IST SUITE
B. TOILET POD TO SUIT DIFFERING AGE GROUPS / NEEDS.
C. LIBRARY.
D. CLASSROOMS.
E. GALLERY / MUSEUM / DISPLAY / LEARNING 'SHOW HOUSE' TO DISPLAY PUPIL WORK MEETING SPACE
F. PLANT ROOM.
G. SPORTS HALL / THEATRE.
H. STORES.
PURPOSE BUILT TABLE / BENCHES FOR DINING AREA.
RECORD OF IDEAS / PROPOSALS DISCUSSED AT MEETING FRIDAY 24 OCTOBER 2003.
DAVID WATTS, IRENE FARLIN, BRUCE McLEAN, WILL McLEAN, LINDA MALLETT.
DRAWBRIDGE TO HOUSE AND PLAYING FIELD TO PROVIDE SECURITY TO SCHOOL AND LEVEL OF ADVENTURE.
GUARD RAILS SMALLER THAN STANDARD SIZE. BALUSTRADE MOVED IN MOVEABLE POOL.
PLANT ROOM OPEN TO SCHOOL AS INSTRUMENT OF MEASUREMENT / COLLECTION OF INFORMATION
ACTIVITY AREA.
PLANT ROOM
TOILETS P4-7
LIBRARY.
HALL 2
HALL 1
STAGE WORK
TOILETS P4-5
TOILETS P1-3
CHANGE & TOILETS
CHANGE & TOILETS
ACCESS TO PLAYING FIELD.
INTERVENTIONS WITHIN GUARD RAIL TO OUTDOOR EXPERIENCE
1. WALL TREATMENT
2. LEARNING INSTRUMENT
3. WINDOW
4. DOOR.
5. FURNITURE
6. FLOOR
7. CEILING.
ENTRANCE TO SCHOOL.
LOWER GROUND FLOOR PLAN.
VIEWING GALLERY.
RETRACTABLE SEATING & MATERIALS STORE.
STAGE.
SECTION THROUGH SPORTS HALL.


ENTRANCE TO NURSERY CENTRE.
COURTYARD
VOID TO ENTRANCE HALL BELOW
FITNESS SUITE
UPPER PLANT ROOM
VOID.
LOBBY
ENTRANCE TO ADMIN / COMMUNITY DEPARTMENTS.
RAMP DOWN FROM ASSEMBLY HALL.
RECORD OF IDEAS / PROPOSALS DISCUSSED AT MEETING FRIDAY 24 OCTOBER 2003 SHEET 2/3.