Dry Run School
For The
Multiply Handicapped
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Introduction

The Rubella Epidemic of 1969 resulted in the birth of several thousand severely handicapped children. Until recent times the education of children such as these has been either neglected or handled by the public school systems, as best they have been able, with their inadequate staff and equipment. The traditional means of dealing with these children is no longer adequate, however, because of the great increase in the numbers of handicapped children and the increased public awareness that these children do have the right to receive an education that is tailored to their special needs and that will enable them to reach their full potential, no matter how limited that might be. In order to assure this result, public education of the multiply handicapped has been made mandatory from age three to age twenty-two, if desired.

Multiply handicapped children are those who have at least two of the following problems or disabilities: blindness, deafness, retardation, cerebral palsey, brain deformities, learning disabilities, motor perceptual problems, emotional problems, or physical deformities. It must be noted that a child who has has any of several of these problems from infancy is almost assured of having at least one other. The public school systems are certainly capable, and have been doing an increasingly better job of dealing with children who have only one of several of the problems listed; however, they are simply not equipped nor do they have personnel to deal with the multiply handicapped child. His needs are far more demanding, time consuming and specialized. For these reasons my proposal is to design a facility solely for the education and training of these children.

A facility of this type must provide for needs that are not normally encountered in the design of a school. It must be geared to a one on one teaching situation rather than the usual large classroom situation. Provision must also be made for teaching methods based on activity rather than on verbal methods and response. In addition, it must be designed to facilitate the greatest possible student interaction with the environment, to provide an environment in which the children are able to develop a sense of independence to the greatest possible degree, to facilitate the teaching of practical skills that will enable the multiply handicapped to succeed as fully as possible in a non-handicapped society, and to provide a menas and environment in which there can be interaction between the handicapped children and other children of the community, parents in the community and parents of the handicapped students. All of these objectives must be accomplished in a facility which, by design and integration into the community, must help to remove the stigma presently attached to the handicapped.
Inspiration for the project came in part through a personal knowledge of the difficulty in finding adequate programs and facilities for the multiply handicapped.

I have twin cousins who were born sighted, but prematurely. They lost their sight shortly after birth due to retrolental fibroplasia, and are considered functionally retarded due to subsequent experiential deprivation. They spent some time at the Indiana School for the Blind, but because of their dual handicap this facility was not able to fully meet their needs. They were subsequently enrolled in the Lull Project for the Blind Retarded, which is located, for lack of better facilities, in the Bethel United Methodist Church. This program covers one facet of the total range of education for the multiply handicapped that I propose for my facility. The inadequacy of the facility in which the Lull Project presently operates testifies to the need for a center for the multiply handicapped.
To understand the multiply handicapped child one must realize that in most cases he has been severely deprived in some manner since birth, or shortly thereafter. Because of sensory motor losses he has not been able to run and play and explore his environment as have other children. Because of blindness he may not have been able to receive normal visual images, or auditory signals because of deafness. In short, the child's brain is understimulated. The fact that many of these children spend considerable time in clinics and hospitals where their emotional and mental needs are subjugated to their physical rehabilitation needs, also impedes their sensory development. In order to help alleviate this sensory deprivation, which may leave the child far enough behind his peers to dictate that he be classified as functionally retarded, much of the child's education consists of controlled and programmed sensory stimulation, starting at the level at which the child is capable of responding.

Another major consideration is that there is no stereotypical multiply handicapped child. Each child must be accepted on his own merits and with his own disabilities. This means that the same facility must meet the needs of a child with severe motor disabilities who has only the physical capabilities of an infant, but is able to communicate verbally at a fairly advanced level; and at the same time it must serve a partially sighted child who has restricted mobility due to cerebral palsey and moderate retardation. It must be expected that some children will be comparatively lightly handicapped and will be able to achieve at least semi-independant lives, but care and education must also be given to those who are heavily handicapped and have limited potential. The goal is to help each child to reach his own full potential.
Dry Run School PROGRAM:
For The
Multiply Handicapped Teaching Methodology

The teaching of the multiply handicapped must be a one on one situation. Therefore the staff/student ratio must be much higher than in most learning institutions. Adequate space for preparation and storage of personal materials must be provided as well as spaces specially designed for intimate personal instruction.

The role of the teacher is that of guide for the child as he moves through the world of discovery. The multiply handicapped child most often does not learn by being told; he learns by doing. His teacher's role is to help him to do and experience those things which will benefit him most at his own particular stage of development. Thus the child's learning environment must be one which allows him the widest range of experience from which he is able to benefit and with which he can cope.

Since teaching of the multiply handicapped involves the achievement of the greatest degree of independence possible the "curriculum" includes eating, dressing, toilet training, hygiene and other basic aspects of living that are mastered by most children at a relatively early age. The dining room, restroom and shower are just as much classrooms as any other learning space in the school, and they must be designed to contain both student and teacher in a relationship which facilitates learning.

Obviously a facility that aims to prepare a child for the world outside cannot do so without exposing him to that world. This is done by means of field trips and outdoor recreation/orientation/learning periods. The outdoor area available to the students should contain enough varied and interesting elements to stimulate discovery and discussion in the children. There should also be play equipment which helps to develop needed motor skills. Play may serve as a multi-faceted experience. Children should be provided an environment in which spontaneous play is encouraged and enhanced. Also, in order to avoid confusion and disorientation, the means of egress to the mode of transportation for field trips should be as clear and simple as possible.
Design for these children must be influenced both by special goals and particular elements to avoid. Because chronic understimulation is often a main problem, the teaching environment must be conducive to sensory stimulation of the child; but, at the same time, must avoid over-stimulation. The teacher should be allowed to arrange her own points of interest within the space without competition from the building itself. Outside distractions should be eliminated as much as possible because short attention spans are frequent characteristics of these children. There should, however, be arrangement for public access to most parts of the facility in order to encourage community awareness and support for the program.

Mobility and orientation often are two other main problems of these children. Therefore the environment for them should not provide any insurmountable obstacles. The need to achieve is often very strong and failure is frequent enough in their lives without being built into the into their learning environment. Any areas, therefore, that are off limits to the children should nonetheless be physically accessible to them if possible. Locked doors are preferable to stairs as a controlling element. Enough space to maneuver is of prime importance, as well as logical organization that facilitates orientation. Spaces should be designed with orientational clues (audible, visual, tactile, olfactory) and without obstacles to "trailing", which is the process of lightly touching a border or object to help achieve a straight line of travel to a known point. Obstacle training can be accomplished with special play/learning equipment at the rate which the child is able to cope with it. Of course, good basic planning for the handicapped as it involves ramps, clearances, etc. must be employed.
Listed below are some of the classroom aids used in teaching the multiply handicapped and the particular skills and abilities that they help to develop.

**Gross Motor Skills**
- large balls, skates, bicycles, gym mats, ladder boxes, blocks, trampolines, workbenches with hammers, saws, climbing stairs, slides, barrels.

**Fine Motor Skills**
- toy clock, knock-out benches, graded circles, squares, etc., construction blocks, block accessories, puzzles, crayons, paints, clay, scissors, paste, chalk, stacking toys, peg boards, lotto, dominoes, lacing shoe.

**Sensory Development**
- rough and smooth letters and number cards, musical instruments (drums, tambourines, cymbals, triangles, various bells, sticks, and sand blocks), record players, tape recorders, different grades of sandpaper squares, flannel boards, sandboxes, water tables, texture box.

**Perceptual Development**
- hand and full-length mirrors, tether balls, projector, color charts, templates, balancing boards.

**Play Materials and Supplies**
- dolls, doll houses, unbreakable dishes, telephones, trucks, cars, large picture books, magazines, mounted pictures, egg beaters, varied bowls, pots, pans, dishes, iron, washable rubber dolls.

**Furniture**
- sturdy tables, chairs, and desks, easels, cabinets, cots or mats, folding screens, room dividers.

**Science Materials**
- batteries, bells, pulleys, magnets, fish bowl.

**Outdoor Accessories**
- balls, pump for balls, sandbox equipment (pails, shovels, etc.), galvanized tub.
The educational process for the multiply handicapped child must be continuous through school and home hours. It requires both skill and patience on the part of teachers and parents. This mandates an extensive parent education program. The first element of this program takes place during the initial interview. During this interview the child is taken to a room where he is allowed to play and is observed in order to gain some idea of his development to date. The parents are then questioned as to the child's background and progress. They are then counselled on what they can expect from the school and how they can assist.

A second element in the parent education program is lectures on various aspects of teaching and dealing with the multiply handicapped child. These may occur on schedules or on an irregular basis, depending on the sophistication and needs of the parents involved.

The final parent education process occurs in the classroom. As a means of reducing staff load and of providing a learning situation, parents are encouraged to spend time assisting in the classroom on a regular basis. This provides practical knowledge of the most useful type without requiring any additional classroom space for teaching.

The school can be expected to draw its student population from all of Marion County and points beyond, if students are willing to travel the required distances. Initial design for 150 students will be undertaken, assuming that due to staff student ratio and the nature of the students involved, a number greater than this would be unmanageable and would have to be handled by additional institutions.

The student/teacher ratio should be held to 3/1 if a good teaching relationship is to be maintained. Not all of these teachers need be as highly qualified as the core teaching staff who would handle the bulk of the one on one teaching situations. Additional help could be provided by parent volunteers, community volunteers, and former students or other handicapped individuals who are qualified and trained to help in some aspects. Class size should be held to eight students with at least a teacher and two assistants.
Dry Run School  
For The  
Multiply Handicapped  

**PROGRAM:  Staff List**

<table>
<thead>
<tr>
<th>Position</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully qualified teachers</td>
<td>20</td>
</tr>
<tr>
<td>Trained volunteers or staff</td>
<td>25</td>
</tr>
<tr>
<td>Trained handicapped students or adults</td>
<td>5</td>
</tr>
<tr>
<td>Director</td>
<td>1</td>
</tr>
<tr>
<td>Assistant Director</td>
<td>1</td>
</tr>
<tr>
<td>Secretaries</td>
<td>2</td>
</tr>
<tr>
<td>General office help</td>
<td>2</td>
</tr>
<tr>
<td>Receptionist</td>
<td>1</td>
</tr>
<tr>
<td>Part-time doctor (specialist in treatment of handicapped)</td>
<td>1</td>
</tr>
<tr>
<td>Part-time doctor (pediatrician)</td>
<td>1</td>
</tr>
<tr>
<td>Part-time dentist</td>
<td>1</td>
</tr>
<tr>
<td>Part-time nurse</td>
<td>1</td>
</tr>
<tr>
<td>Full-time nurse</td>
<td>1</td>
</tr>
<tr>
<td>Psychologist</td>
<td>1</td>
</tr>
<tr>
<td>Speech and hearing therapist</td>
<td>1</td>
</tr>
<tr>
<td>Physical therapist</td>
<td>1</td>
</tr>
<tr>
<td>Dietician</td>
<td>1</td>
</tr>
<tr>
<td>Cooks</td>
<td>4</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>1</td>
</tr>
<tr>
<td>Head of building maintenance</td>
<td>1</td>
</tr>
<tr>
<td>Custodial assistants</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>74</strong></td>
</tr>
</tbody>
</table>
The site chosen is located near the Indianapolis Motor Speedway, in Indianapolis, Indiana. It is a section of a large block of land owned by Tony Hulman, which is presently unused and posted "No Trespassing." The section of the site on which I propose to design is zoned for agriculture.

The surrounding area is primarily residential with some light commercial areas. A small stream with relatively steep banks runs through the site, which has rolling contours. There is minimal existing vegetation other than grass. Access to the site is by means of Moller Road and West 26th Street, both of which are two lane roads.

In a facility drawing on such a large area a multifaceted system of student transportation may have to be adopted.

For those who are far removed and/or isolated, private transportation or car pools might be utilized. Traditional bus route pick-up, using mini-buses quipped for handicapped individuals, can be expected. As a third possibility, the collection of students in individual school districts and transportation from those schools to the new facility might be expected. For older and more independent students, public transportation may provide an answer.
Dry Run School PROGRAM:
For The Multiply Handicapped Space Requirements

ENTRY . . . . . . . . . . . . . . . . . . . . . . . . . . . 300 sq.ft.

Purpose: To provide a clearly defined and protected transition area from exterior to interior, which maximizes entry of all concerned persons and minimizes entry of the elements.

Equipment: Protected exterior area, prominent display space immediately inside of building.

Special Considerations: Convenience for disabled and handicapped is of primary importance.

RECEPTION . . . . . . . . . . . . . . . . . . . . . . . . . . . 100 sq.ft.

Purpose: Control of entry area and information center for visitors.

Equipment: Low counter with minimal restriction of contact between reception and entry space.

Support Space: A. Small storage space

WAITING . . . . . . . . . . . . . . . . . . . . . . . . . . . 200 sq.ft.

Purpose: To provide a comfortable, relaxing, inviting, informative waiting area for visitors.

Equipment: Lounge chairs, end tables.

Special Considerations: Display space should be visible to visitors waiting in the area.
Dry Run School
For The
Multiply Handicapped

Program: Space Requirements

Medical Facilities

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Required Areas</th>
<th>Required Areas</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide a complete health care program for the children in order to assure that their total range of health care is not neglected.</td>
<td>A. Reception/waiting 150 sq.ft. B. Nurse/secretary station 100 sq.ft. C. Office - M.D. 100 sq.ft. D. Office - M.D. 100 sq.ft. E. Office - D.D.S. 100 sq.ft. F. Medical storage 25 sq.ft. G. Speech and hearing testing 200 sq.ft. H. Observation 100 sq.ft. I. Laboratory 150 sq.ft. J. Toilets 150 sq.ft.</td>
<td>Standard and small-scale fixtures.</td>
<td></td>
</tr>
</tbody>
</table>
Dry Run School
For The Multiply Handicapped

PROGRAM:

NEW STUDENT OBSERVATION . . . . . . . . . 100 sq.ft.

Purpose: To provide space for the observation and occupation of potential students during their evaluation period and parent conference period.

Equipment: Suitable furniture and toys to occupy children.

Supporting Spaces:
A. Adjacent observation room . . . 25 sq.ft.
B. Storage space for toys . . . 25 sq.ft.

Special Considerations: Communication with parent conference room.

CONFERENCE ROOM . . . . . . . . . . . . . . . . . 300 sq.ft.

Purpose: To provide a large elegant space for important meetings and/or dinners.

Equipment: Folding partition, integral storage

Support Space: A. Small kitchenette/dwier . . . 20 sq.ft.

Special Considerations: Easy access from main kitchen for serving food.

STAFF LOUNGE . . . . . . . . . . . . . . . . . . . 300 sq.ft.

Purpose: To provide an area for informal staff meetings and relaxation.

Equipment: Lounge furniture, dwier unit or kitchenette.
Dry Run School
For The
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PROGRAM: Space Requirements

RESIDENTIAL UNIT

Purpose: To provide a semi-independent living unit for those students whose homes are too far removed to make daily travel practical. To be used only for those students who have attained a considerable level of independence.

Spaces Required:

A. Kitchen . . . . . . 150 sq. ft.
B. Residence style bathrooms . . 150 sq. ft.
C. Individual rooms . . . . . 800 sq. ft.
D. Lounge area . . . . . 300 sq. ft.
E. Dining room . . . . . 150 sq. ft.

Equipment: Stove, refrigerator, kitchen cooking utensils and equipment, beds, dressers, lounge furniture, dining furniture.

Special Considerations: Residence units will be divided into two living units each composed of four individual rooms, one bathroom and one lounge. Other spaces will be common to both units.

VIDEO TAPE CENTER . . . . . . . . . . . . . . . . . 200 sq. ft.

Purpose: To provide space for storage and viewing of video tapes and for equipment.

Equipment: Portable video tape camera and console, built-in video console, tape storage, lounge furniture.

Special Considerations: Extent of closed circuit video system and the need for building wide system will be dealt with later in the project.
Dry Run School **Program:**

For The **Multiply Handicapped**

**Space Requirements**

<table>
<thead>
<tr>
<th>Area</th>
<th>Size</th>
<th>Purpose</th>
<th>Equipment Required</th>
<th>Special Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDIA CENTER</strong></td>
<td>900 sq.ft.</td>
<td>To provide an area for using and storing books, braille books, and auditory equipment.</td>
<td>A range of educational and enjoyable reading materials, braille books, tapes, talking books, records, tape decks, phonographs, talking book decks, storage for all materials, listening carrels, reading tables, and chairs.</td>
<td>Quiet space for reading and listening to audio equipment with headphones.</td>
</tr>
<tr>
<td><strong>MUSIC MEDIA CENTER</strong></td>
<td>350 sq.ft.</td>
<td>To provide a space in which the children are able to experiment with musical and rhythm instruments without disturbing others.</td>
<td>Drums, flutes, rhythm sticks, guitar, piano, etc.</td>
<td>The room should be acoustically isolated from adjoining spaces and should have adequate tack space for displays.</td>
</tr>
<tr>
<td><strong>RESIDENTIAL TYPE BATHROOM</strong></td>
<td>100 sq.ft.</td>
<td>To provide a place for teaching hygiene and personal care.</td>
<td>Sink, vanity, toilet, tub/shower.</td>
<td></td>
</tr>
</tbody>
</table>
Dry Run School
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Space Requirements

CLASSROOM AREAS

Purpose: To serve as the main teaching areas of the facility.

Classroom Types:

I. Young child . . . 8 @ 450 = 3600 sq.ft.
(For young and heavily handicapped children with limited mobility.)

II. Mid-range child . . 8 @ 450 = 3600 sq.ft.
(For older children with moderate handicaps and/or proficiency in dealing with basic mobility and daily functioning problems.)

III. Older child/young adult . 4 @ 450 = 1800 sq.ft.
(For older children with light handicaps and/or considerable proficiency in dealing with their handicaps, and for young adults who are best not placed in classes with younger children.

Support Spaces:

A. Observation rooms . . . . 20 @ 20 = 400 sq.ft.
B. Toilets . . . . . 8 @ 50 = 400 sq.ft.
C. Storage . . . . . 20 @ 25 = 500 sq.ft.
D. Personal storage for students . . . . 4 @ 200 = 800 sq.ft.

Equipment: (Listed in materials and equipment section of program.)

MECHANICAL EQUIPMENT ROOM . . . . . . . . . . . 1500 sq.ft.

Purpose: To provide a safe convenient location for major building mechanical equipment.

Equipment: To be determined later as HVAC systems are analyzed and selected.
Dry Run School  
For The  
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**Program:**

**Activity Rooms:**
- Purpose: To provide indoor areas for gross motor development and loud play activity.
- Equipment: Trampoline, climbing equipment (wall mounted and free standing), climbing ropes, chinning bars, tumbling mats, etc.
- Support Spaces: 
  - A. Equipment storage
  - B. Office with observation window
- Special Considerations: Good acoustics are very important to avoid overstimulation.

**Nataatorium:**
- Purpose: To provide a swimming and water environment learning area.
- Equipment: Large pool, ramp entry to pool, handrails, flotation and teaching aids.
- Support Spaces: 
  - A. Observation room
  - B. Office controlling access to pool
  - C. Lockers with showers and toilets
  - D. Mechanical and filtering equipment
- Special Considerations: Good acoustics to facilitate teaching and to avoid overstimulation.

**Building Services:**
- Purpose: To provide the necessary space for the maintenance crew and their equipment.
- Equipment: Exterior and interior maintenance equipment and supplies.
- Required Spaces: 
  - A. Loading dock
  - B. Receiving area
  - C. Building storage
Dry Run School
For The
Multiply Handicapped

PROGRAM:

Space Requirements

DINING ROOM . . . . . . . . . . . . 2500 sq.ft.

Purpose: To provide space and atmosphere in which children can be helped to feed themselves and/or enjoy their meal in a normal manner.

Equipment: Tables and chairs.

Supporting Spaces:

A. Stage . . . . . . . . . . . . 250 sq.ft.
B. Table and chair storage . . . . 250 sq.ft.

Special Considerations: The relationship between the dining room and the kitchen should be clear to the students so that they are continually reminded of where the food comes from. This is to eliminate from the student's minds the idea that the food simply appears magically.

KITCHEN . . . . . . . . . . . . . 700 sq.ft.

Purpose: To prepare meals for students faculty and staff. To serve as an aid to the education of the students.

Supporting Spaces:

A. Dry storage . . . . . . . . . . . . 125 sq.ft.
B. Cooler . . . . . . . . . . . . 100 sq.ft.
C. Freezer . . . . . . . . . . . . 60 sq.ft.
D. Dieticians office . . . . . . . . 100 sq.ft.
E. Staff lockers . . . . . . . . . . . . 150 sq.ft.
F. Dishwashing room . . . . . . . . 120 sq.ft.

Special Considerations: Kitchen should be easily accessible to children for learning purposes.

TOTAL PROGRAMMED SQUARE FOOTAGE 39520 sq.ft.

25% OF TOTAL PROGRAMMED SQ.FT. 3952 sq.ft.

TOTAL BUILDING SQUARE FOOTAGE 43472 sq.ft.
Dry Run School PROGRAM:
For The Exterior
Multiply Handicapped Space Requirements

RECREATION AREA

Purpose: To provide a year-round space for outdoor recreation and therapy.

Equipment: Immobile and child moveable equipment that helps the child to gain strength, coordination, and pride in achievement while he is engaged in play. Risks should be minimal, but challenges should abound. Challenges of different degrees of difficulty should be provided to accommodate the various abilities of the children.

PARKING

Purpose: To provide adequate parking for student transportation vehicles and staff and visitor’s vehicles.

Requirements: 1 space per staff member plus an additional 10 per cent.
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Special thanks to Mrs. Florence Lull, director of the Lull Project for the Blind-Retarded.
Dry Run School
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SITE ANALYSIS
Dry Run School
For The
Multiply Handicapped

SITE ANALYSIS:
Location Map
Dry Run School
For The
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SITE ANALYSIS:
Vicinity Map
Dry Run School
For The
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SITE ANALYSIS:

Zoning Map

Northwest H. S.
Moller Road Park

W 30th St

W 26th St

Lynhurst Dr

W 25th St

Speedway H. S.

PK1

Coca-Cola Bottling
Dry Run School
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Northwest H.S.

SUN ANGLE ANALYSIS

ave. temp.
Jan. - 29°
July - 75°
yearly - 52°

ave. precip.
rain - 39
snow - 20

JUNE
DEC.

usual direction of tornado travel

Coca-Cola Bottling

Climate Conditions
Dry Run School
For The
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SITE ANALYSIS:
Site Section
Dry Run School
For The
Multiply Handicapped
Contour Map
Dry Run School
For The
Multiply Handicapped

SITE ANALYSIS:
Conclusion

possible building location area
Dry Run School
For The
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SCHEMATIC DESIGN