DUAL SLOPE
COUNTRY CLUB

THESIS OF
RONALD RICHARDSON
INTRODUCTION

This manuscript is a compiling of data research that went into the design of the Dual Slope Country Club. The club is to be located in the affluent area of Carmel, a city just north of Indianapolis having a population of approximately 50,000.

There are three major phases that this thesis is divided into. The first phase is the Program which consists of the clients description, building type study, space allocation and atmosphere description, site analysis and conceptual studies.

The second phase is devoted to Design Development. This section starts with the selected concept and goes through an explanation on how the building and surroundings were approached and handled in the design.

The final phase covers the presentation of the final design.
SUMMARY

The project selected for my thesis is a country club clubhouse with a designed membership capacity of 500. The 480-acre site was selected from the center of a 2,500-acre tract located northwest of Carmel, Indiana between 161st and 169th Streets and Spring Mill Road and Ditch Road. This area is approximately 8 miles north of Indianapolis. My study of the area indicated a strong need for an all-round exclusive country club that would attract the affluent and professional industrial-executives and their families.

The club's proposed facilities include an 18-hole, par 72 golf course and tennis, racquet ball, and handball courts. The clubhouse is functionally separated into social and athletic activity areas. The social area will include dining facilities with provisions for dancing, a formal cocktail lounge and a game room. The athletic area will include pro shop, snack bar, racquet ball, locker rooms and other supporting areas.

Some of the problems I intend to deal with are:
1. Selecting a site for the country club.
2. Designing the clubhouse to function socially and athletically year round.
3. Providing good views to those areas where required.
4. Designing the social and athletic areas to be expresses
separately while still having the clubhouse appear as one entity.

5. Locating entrances for social and athletic activities so they function independently.

6. Allowing no conflict between the entrances such as service, social and athletic.

7. Providing the pro shop visual control over its various supporting spaces.
PROJECT DESCRIPTION

This project is to be a design of a country club for the affluent population of Carmel and Indianapolis, Indiana. The club is to provide for a membership of 500 families with estimated figures of 300 for golf and 200 for tennis, handball and racquet ball.

The client has allowed a building budget of $2.5 million with a separate budget for the purchase of land and the construction of the golf course.

The client wants:
1. to create a facility that will operate year round.
2. to locate the facility in an area of expanding affluent homesites.
3. to include a par 72 golf course, tennis, handball and racquet ball courts.
4. to have a social area with formal dining and entertainment that will seat 300, a formal cocktail lounge, a private dining area for special functions and an elegant lobby.
5. to allow for simultaneous formal and informal activities to occur.
6. to design an area so that the young family members can hold their functions on a semi-formal basis.
7. to provide for a game room and needed support facilities.
8. to design around valet parking.
BUILDING TYPE STUDIES

The purpose of these studies was to help in the design understanding of a country club. With each study I tried to select critical issues of that particular design to obtain an understanding of how the architect handled these problems. The various studies also gave me an understanding of the relationship of particular activities. In selecting the critical issues I was able to formulate ideas on what spacial relationships were flexible and which ones were rigid. I was also able to formulate what conceptual design ideas read through strongly. At the end of this section is a list of critical issues that pertain to my project.
This country club is located in southern Florida and was designed by Donald Singer. The club is a bi-nuclear solution separating the social and athletic functions into two separate buildings of similar geometry. The two buildings are connected by an open bridge which also serves as an auto drop-off under the bridge. The social building groups the lobby, lounge, dining and kitchen in one area. The exterior envelope of this building is glass giving a large viewing area of the golf courses. The athletic building is almost totally opaque with the exception of the pro shop which is glass, giving a strong feeling of privacy to the locker rooms. Singer, by the use of earth berming, gave the two-story structure a low stringing profile.

Critical issues:
1. Strong separation and expression of social and athletic functions.
2. Use of similar and simple geometric forms.
3. Use of one entrance for service and members.
4. Low linear profile.
5. Social takes full advantage of surroundings.
6. Use of starter for control of course instead of pro shop.
7. Use of concrete to contrast the soft, natural surroundings.
Encouraging their client, the Gulfstream Land & Development Corporation, to depart from the local tradition of "ship's wheel and stuffed sailfish" design motif, architect Donald Singer and interior designer Terry Rowe have created a private country club that is thoughtfully planned, elegantly appointed and well suited to function as the recreational focus on an 850-acre, planned residential community on Florida's fast-growing Atlantic coast.
WATERWOOD NATIONAL GOLF CLUB
Lake Livingston, Texas
Architect: Clovis Heimsath and Associates

The club is located in Lake Livingston, Texas. It was designed by Clovis Heimsath and Associates. This design is a two-story arrangement with the social on the upper level and the athletic underneath. The architect gave the building a one-story appearance at the entrance by earth berming. Using the second story for social area which included dining, cocktail lounge, and kitchen on the same level with a glass enclosure for dining and cocktail lounge. The first level has the pro shop facing the course with glass enclosure and the locker rooms are tucked back in the earth berms for privacy.

Critical issues:
1. Two-story building with social above and athletic below.
2. Single entry.
3. Separate service entry.
4. Dining is stair-stepped to maximize view.
5. Snack bar is located away from kitchen.
6. Open plan for social.
MAUNTAUK GOLF and RACQUET CLUB
Mauntauk Point, Long Island, New York
Architect: Richard Foster

This country club is located in Long Island, New York. It was designed by Richard Foster. The architect used a pyrimidal form with the social activities on the second floor. This upper level has a 360° view of the golf course given by the glass enclosure. The first floor has only glass opening at the pro shop, club room and main entrance. The architect handled the service entrance problem by creating only one service location of which all needed areas are grouped around. The high ceiling area of the form is reduced by the use of large hanging light fixtures.

Critical issues:
1. Separation of social and athletic by having social above and athletic below.
2. Use of single entrance for athletic and social functions with separate service entries.
3. Use of centrally located kitchen for use by both floors at dining and snack bar.
4. Use of one space for dining and lounge.
5. 360° view from dining room.
7. Strong use of berms and simple geometry.
Main entrance and lobby are on the lower level, with stairs leading directly to the main dining room and its bar. From the deck surrounding the dining room, there is a 360-degree view over the countryside and to Montauk Bay. The berm on which the building sits is simple and appropriately landscaped with easily maintained juniper. Salt spray from the ocean necessitated a very limited palette of plant materials.

MONTAUK GOLF AND RACQUET CLUB
Montauk Point, Long Island, New York
Richard Foster
BOULDER COLORADO COUNTRY CLUB
Boulder, Colorado
Architect: Hobart D. Wagener & Associates

This club is located at Boulder, Colorado. The architect was Hobart D. Wagener & Associates. The hexagon form was used for this building to separate the various functions. It is a two-story arrangement with social on the upper level and the athletic underneath. The second story contains the dining room, cocktail lounge, kitchen and main entrance. The first story consists of the athletic-oriented functions. On the first level only the pro shop has a glass envelope of view control of the course. On the second story the dining and cocktail lounge have a selected view of the course.

Critical issues:
1. Social and athletic areas are separated vertically.
2. There is direct access to course from pro shop and locker rooms.
3. Hexagons are used to define each separate function.
4. There are two entries; one social, the other athletic.
CRITICAL ISSUES

Critical issues which pertain to my project at this stage of the design process are the following:

1. The design should be done in stages as dictated by the economic status of the club.
2. The building should have a strong physical separation between the social and athletic sections.
3. The building should be created so that it is grand and prestigious from an overall view, but personal when you enter the spaces.
4. The building should be designed in a medium economic range: $50/sq.ft.
5. The design should maintain as much of the natural beauty of the surroundings as possible.

Other critical issues will become apparent as the project progresses.
DESIGN CONSIDERATIONS

Besides the functional requirements of the clubhouse, I intend to design the facilities to include the following:
1. Blend with the site and surroundings.
2. Express the social and athletic functions while still having the design relate as a whole.
3. Designed at a human scale, not a monumental one.
4. Create a feeling of welcome to the building.
5. Designed to take advantage of the golf course view.
6. Design so that it relates strongly to the outside.
REQUIREMENTS OF SPACES

This section is an explanation of the types of spaces, their character, and their program relationships to other spaces.

In general, the building is divided into two major areas: the social, which will have an air of formality; and the athletic, which will have an air of informality. Both of the major areas have service functions which require a strong separation from both public view and circulation due to their noise and uncleanliness.

Discussion of each space will be divided into two sections. The first will deal with the requirements of the space, while the second will discuss the imagined character of the space.

Spaces included in the social area are: dining and dancing areas, cocktail lounge, private dining room, kitchen, waiting room, coat room, manager's office, receptionist's space, lobby, rest rooms, storage, game room.

Spaces included in the athletic area are: pro shop, pro office, stock room, cart storage, locker rooms for both men and women, club storage, handball courts, racquetball courts and grill.
DINING

Requirements:
The dining room should seat 300 people and should provide an area for entertainment and dancing. It should be located so as to take advantage of views of the natural surroundings. There must be a strong interaction with the outside. During the winter it needs direct natural light all day long to provide additional heat. It must be located adjacent to the kitchen, and easily accessible to the cocktail lounge, lobby, waiting areas and rest room facilities.

Character:
The dining room should have a strong air of formality. It must have an openness to private outside areas, while at the same time provide seclusion from the general public. It should interact with outside activities but still maintain an aloofness to the casual. Although the room must be formal, it must create a warm, cozy feeling. It should be buffered from noise from external areas.

PRIVATE DINING

Requirements:
The private dining area should accommodate 200 people. It must
be adjacent to the kitchen for service purposes. In addition, it must have easy access to the lobby and rest room facilities. The room requires a strong sense of seclusion, and needs to be separated from the viewing of the main dining room, cocktail lounge and lobby. The private dining room should be designed to include indirect natural light and a low noise factor.

Character:
The private dining area will be the most formal and private room in the clubhouse. It is to be used for private parties, and business luncheons and dinners. It must promote a strong feeling of seclusion and security, but at the same time must be warm and within a human scale.

LOUNGE

Requirements:
The lounge must seat 60 people and provide a pleasant view of outside activities as well as views of the entertainment in the dining area. It must have a strong relationship with the outside. The lounge will function as an adult waiting area for dining and an adult relaxation area, so it must be accessible from dining rooms, lobby, golf course, game room and tennis courts.
Characteristics:
The lounge must have an air of formality while still being warm and cozy. It should promote a feeling of relaxation with passive views of exciting activities. The room must strongly relate to the outside.

LOBBY

Requirements:
The lobby must be centrally located to provide easy access to dining rooms, the cocktail lounge, the game room, the manager's office, the receptionist's space, the waiting area, and the coat room. It should be formal and open, and should readily identify all means of access to surrounding areas. The lobby should be strongly protected from winter winds and should have indirect natural light.

Characteristics:
The lobby should be luxurious, to promote an air of formality, as well as warm and welcoming. It should give a sense of direction, and should provide hints of what is going on throughout the whole club.
GAME ROOM

Requirements:
The game room should be approximately 2,000 square feet and should have access from the lobby and locker rooms. It should have views of exciting areas, as well as provide spaces for card, pool and table tennis tables. The room should be able to function as a teenage gathering place and dance room is possible. The game room should have indirect natural light.

Character:
The room should be warm and exciting. It is a strong link between the formality of the social and the informality of the athletic. The room will be noisy, so it needs to have a noise buffer.

SUPPORTING SPACES FOR SOCIAL AREAS

Waiting Room: The waiting room supports the dining rooms. It should seat 20 comfortably and provide a feeling of relaxation and warmth. It should provide interesting and exciting views, but not a direct view of the dining room. The waiting room must have easy access to the dining room and lobby.

Coat Room: The coat room must accommodate 200 coats and be easily accessible and recognizable from the lobby. It must include a feeling of security, which will be accomplished, in part, by the
presence of a coat-room attendant.

Receptionist Area: The receptionist will serve as information center and secretary to the manager. The area must have a location of prominence, adjacent to the lobby, for easy recognition upon entering the club.

Rest Rooms: Rest rooms must be accessible from the dining room, private dining room, cocktail lounge without causing people to go through other spaces to get to them. They must be found easily, but they must emit a sense of privacy. Each facility should be sized to handle five water closets.

Manager's Office: The office should have approximately 200 square feet, and should be easily accessible from the lobby. It must also allow the manager the means of easy access to the kitchen and dining areas for supervision.

Storage: Storage areas of approximately 1,500 square feet are needed for extra chairs, tablecloths and other miscellaneous items.

Kitchen: Because the kitchen is noisy and has odors, it should be screened from adjacent areas. It must, however, have easy access to both the dining room and private dining room. The kitchen's service entrance should not be in direct conflict with the entry to the building. The kitchen should be fifty per cent of the
dining area. The kitchen includes the following areas: meat preparation, vegetable preparation, cooking, cold food, serving pantry, dishwashing area, circulation, dry storage, refrigeration, receiving, trash, lockers, and chef's office.

Grill: The grill should seat approximately 75 people and should have easy access to athletic areas. It should have a strong relationship to the outside and should take full advantage of all views. The grill is a casual dining area which provides a strong link between the social and athletic functions. It is a place where people can either sit down and eat or carry food out. Casual sports attire is acceptable.

PRO SHOP

Requirements:
The pro shop should be approximately 900 square feet and should be strongly recognizable in location upon entry into the building. Its location requires view and control of the first and tenth tees and the ninth and eighteenth green. It also needs control and easy access to locker rooms, club and cart storage, stock room, handball courts and tennis courts. In addition, it should be accessible to the grill and cocktail lounge. The pro shop requires
an area for a cashier, and an area for merchandise to be displayed and viewed as people pass by. It should have direct morning light.

**Character:**

The pro shop should be open and luxurious, with a sense of subtle merchandising. It is the strong control point of the athletic area of the club.

**LOCKER ROOMS**

**Requirements:**

Locker rooms should be equal in size for both men and women. They should provide approximately 300 lockers each, as well as showers, toilet facilities and sauna facilities. Total space per locker room should be about 1,800 square feet. Locker rooms should be easily accessible from the entry point, pro shop and outside activity areas. They must be private, with no direct views within. They should receive natural light, and should be buffered to keep noise inside.

**Character:**

Locker rooms should promote feelings of security, warmth and privacy. Areas surrounding them could generate social activity or viewing to the outside.
SUPPORT SPACES FOR ATHLETIC AREA

Handball Courts: The club will provide four handball courts of approximately 1,000 square feet each. They will be noisy, but exciting to view, so full advantage should be taken to provide viewing areas. They must be easily accessible to the pro shop and locker rooms. They require strong artificial lighting; any natural light must be indirect.

Cart Storage: Cart storage should be sized to handle 36 power carts, for approximately 2,000 square feet of space. It must be adjacent to club storage, and must have direct access to the course. The area must be under the control of a supervisor (either the pro shop manager or maintenance manager). It is a potentially noisy and dirty area, so the public should not have direct view.

Club Storage: Club storage should be sized to handle 200 bags, in a total of approximately 500 square feet. It is a potentially dirty and noisy area, so the public should not have a direct view.
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<thead>
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<th>Social</th>
<th>Square Feet</th>
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<td>Dining and dancing</td>
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<td>Cocktail lounge</td>
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<td>Grill</td>
<td>750</td>
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<td>Private Dining</td>
<td>3,000</td>
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<tr>
<td>Kitchen (50% dining and grill)</td>
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<td>Waiting room</td>
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<td>Coat room</td>
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<td>Restrooms (Men)</td>
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<td>Restrooms (Women)</td>
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<td>Game room</td>
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### ESTIMATED SQUARE FOOTAGES

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<td>Power carts</td>
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<td>Men's locker room</td>
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<td>toilets</td>
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<td>sauna</td>
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<td>Women's locker room (same as Men's)</td>
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<td>Handball courts</td>
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<td><strong>Total</strong></td>
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### ESTIMATED SQUARE FOOTAGES

<table>
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<th>Totals</th>
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<tr>
<td>Total Social Area</td>
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<tr>
<td>Total Athletic Area</td>
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<td>Total of both areas</td>
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<td>Outdoor pool</td>
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<tr>
<td>Tennis courts</td>
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Estimated cost at $50/sq.ft. is $1,998,450.
Sources & Credits

1) **Time Saver Standards for Building Type**

2) **Douglas Buell's Thesis. - Building Type Studies**

3) **Places for People - Building Type Studies**
   Edited by Jeanne M. Davenport, Hon. AIA
   An Architectural Record Book

4) 1965 July. Architectural Record pg. 156-157
SITE ANALYSIS

The site that was selected is northwest of Carmel, Indiana, near Village Farm subdivision, a rapidly growing upper-middle class development 8 miles north of Indianapolis, Indiana. The 480-acre site was selected from a 2,500-acre area. The site has access on all sides by 161st, 169th Streets, Spring Mill and Ditch Roads. The site has a gentle roll and some wooded vegetation, but is primarily farmland.

To locate the best area for the building, an analysis of the site has to be undertaken. This analysis will consider: 1) soil, 2) topography, 3) vegetation, 4) access, and 5) solar exposure. (For details see following maps.)

The soils that predominate on this site consist of:
1. Brookston silty clay loam BR
2. Crosby silt loam CRL
3. Miami silt loam MmB₂
4. Patton silty clay loam Pn

Soil Characteristics:
Brookston silty clay loam BR
1. Nearly level, deep soil.
2. Poorly drained.
3. Slope is less than 1%.
4. Soil has moderate permeability.
5. Water table 0 to 1 foot during winter and spring.
6. Surface has high organic content.
7. Surface run-off is ponded or very slow.
8. Soil drained by open ditches or subsurface tile or surface drains.
9. Soil suitable for trees and grass species which are tolerant to wetness.
10. Seasonal high water table.
11. High potential for frost action and moderate shrink-swell.
12. Soil has severe limitation to building because of number 11.
13. Severe limitations for local roads due to number 11.

Crosby silt loam CRL
1. Nearly level, deep soil.
2. Poorly drained.
3. Slope is 1 to 3%. 
4. Slow permeability.
5. Surface has a high organic content.
6. Available water capacity is high.
7. Water table 1 to 3 feet in winter and spring.
8. Surface run-off medium to slow.
10. Soil suited to tree growth.
11. Potential frost action high.
12. Moderate to severe building limitations because of number 11.
13. Moderate to severe limitations for local roads.

Miami silt loam MmB₂
1. Gently sloping, deep soil.
2. Well drained.
3. Possible erosion.
4. Moderate permeability.
5. Available water capacity is high.
6. Surface run-off is medium.
7. Good potential building site.
8. Good for grass and tree growth.
9. Moderate frost action.
10. Moderately slow permeability in substratum.

Patton silty clay loam Pn
1. Nearly level, deep soil.
2. Poorly drained.
3. Less than 1%.
4. Moderate permeability.
5. Water table 0 to 1 foot during winter and spring.
6. Surface run-off ponded or slow.
7. Good grass growth.
8. Trees that tolerate wetness.
9. Severe frost action.
10. Severe building limitations.
11. Severe road limitations.
CONCEPT

1) Design a club with a separation of social & athletic by using a linear arrangement.

2) To express a hierarchy of formal to informal.

3) To express private to public.
   Keep the entrance side private & closed
   the course side open & public.

4) Design the athletic area to be capable of functioning year around.

5) To protect entrances from winter winds

6) Social area to view as much of course as possible.
Social
- Private Dining
- Dining
- Lounge
- Waiting Area
- Office

Social & Athletic
- Game Room
- Snack Bar
- Gallery
- 19th Hole

Athletic
- Pro Shop
- Locker Room
- Handball Court
Looking at a very general arrangement of the two major functions:
Option #1 giving the social a more private location on the site.
Option #2 gives social a broader view of the course.

Kitchen must be next to dining.
Grillie should relate to athletic.
Locate handball to be viewed from grillie.
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<th>NO.</th>
<th>PAR</th>
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