Activity-Based Design for Living, Dining, Kitchen, and Work Areas
By Tom Jones, AIA

This essay was developed by Tom Jones, an architect with over 25 years experience in affordable housing design and co-author of one of the definitive books on the subject: **Good Neighbors: Affordable Family Housing**. The essay reviews the value of, and describes a process for, designing the key social rooms within a home by analyzing how those rooms will actually be used by their occupants. It can be used to help inform and guide group discussions of unit layout and room design. After providing general guidelines for each key room type, the essay concludes by listing the pros and cons of alternative room combinations.
(Additional information on room sizes and configuration, including drawings of furniture layouts, can be found in Architectural Graphic Standards, published by John Wiley & Sons, or in Time Saver Standards for Housing and Residential Development, published by McGraw-Hill.)

Common Social Spaces: Market Trends

The common social spaces within a housing unit are the center of family life, regardless of family income. Over time, and with increasing general affluence and leisure time, the number, size, and type of common social spaces in the typical American middle class home have grown.

Today's new "tract home," for example, may feature a Living Room of 200-250 square feet, a separate Dining Room of 120 - 200 square feet , and a separate Kitchen with 120 -150 square feet for food preparation and a 80-120 square foot "breakfast" area as well. An additional 150- 250 square foot Family Room located off the Kitchen is also considered essential, and may actually be the largest room in the house. A separate Office or Study of 100 - 140 square feet is also common, where the family computer and household management files are maintained.

The combined area of these common spaces often exceeds the total area of the typical 2 bedroom starter home from the 1930's to 1950's!

Implication for Affordable Housing

In affordable housing, all these same activities must be able to occur in significantly less overall space. This is not accomplished by simply shrinking the sizes of middle class rooms, or arbitrarily merging rooms. Instead, the entire project team should participate in resident home activity discussions and alternative room layout exercises which will determine the appropriate sizes and relationships of the common social rooms within a typical unit.

This process begins by focusing on the daily life needs of the intended occupants, with an emphasis on activities which occur simultaneously, during such peak family times as after school, on weekends, and on special occasions. Members of the team and potential occupants can draw from their own positive and negative experiences and vantage points in imagining such situations as the typical hour before dinner, when younger children want to play games on the floor, other family members are watching TV or talking, and some are studying or working at a desk while others are cooking the meal.

Once activity patterns are identified they can be used to help design the units. The layout of common social areas should occur in two related steps. First, the activities which need to be accommodated

and the furniture needed to support those activities should be diagrammed. This will help establish a set of minimum space dimensions. Second, different ways of arranging these activity spaces next to one another - to create separate rooms or to define separate areas - need to be diagrammed and evaluated. This will help establish basic room location parameters for typical units in the development.

As part of this process a need for special design features - to accommodate special activities or furnishings – may arise. These features could include such elements as alcoves, bays, recesses, widened halls, different wall heights and lengths, pass through counters, changes in floor or ceiling level, or other devices which optimize the livability and flexibility of the units in the most compact and space efficient manner. These special features should also be diagrammed and evaluated in terms of how well they serve the needs of the occupants.

General Guidelines for Common Areas

The following section provides some general guidelines for analyzing and configuring the most common social rooms in affordable housing developments. Design decisions should be made only after all the potential activities that might occur in these areas are considered from the viewpoint of each potential household member, and furniture layouts are evaluated to test how the spaces could be used.

The Living/Social Area

- As the central "social and entertainment" zone for most households, Living Rooms must accommodate a great range of activities, both active and passive. Avoid locating activities that require quiet such as homework or home office desks or primary telephone conversation areas within the living area unless those activities will occur at different times than family social events.
- Living Room furniture tends to be grouped around the perimeter, with the primary seating on one side of the space and the television/entertainment equipment on the other.
- Many households use Television and Stereo/CD "Entertainment Centers" which are the focus of their rooms. Be sure to have enough wall space to accommodate large size entertainment units in a location which is easily visible from all seating.
- Consider whether household "treasures", books, photos, religious icons, or other significant items will require furniture units or large wall areas in the common social areas.
- Connections and openings to other activities, circulation to and through this zone, and exterior doors and windows should not compromise the ability to furnish the living area.
- Use furniture layouts to set critical minimum room dimensions.   Be sure more than one layout is possible which will seat every family member, using at least one seven foot sofa. Include space for "side tables" for lamps, deep entertainment centers, and ample "stretch out" leg room when laying out furniture
- Check the space left for circulation assuming every piece of furniture is occupied by defining a minimum 30" path of travel. Use minimum standards for a wheelchair path of travel when testing any spaces subject to handicapped accessibility regulations.

The Dining and Table Area

- Dining tables vary in size and shape. Round tables may be the most compact form, but will not always be the user's choice. Be sure a variety of table shapes with ample circulation around the perimeter of all seats can be accommodated. Determine the area required for the minimum table to seat the largest family size anticipated in the unit type. Test to see that each chair can be accessed easily and circulation around the chairs is not impeded when the table is fully occupied
- Provide space for table expansion for special events. Table expansion zones which normally have easily relocated furniture may be acceptable
- Consider that dining tables and eating areas may be used for many non-meal activities, such as homework, folding laundry, playing games, socializing, and cultural or religious gatherings, each of which may require different space, wall configuration, and visual and acoustical isolation from other zones.
- Many families purchase bulk food and household maintenance items which must be stored in upper and lower kitchen cabinets. As a result, dining room furniture units are often used to store or exhibit plates, bowls, and other dining related items. Consider the possible size and location of such a unit.
- Eating counters within kitchens or between kitchens and other areas are encouraged to provide additional eating, game playing, and homework space, but fixed counters should not be considered the primary eating area.

Food Preparation Area

- Different cultures or individuals may have strong attitudes about the direct visibility of food preparation, cooking, or cleaning activity from other areas. The use of partial height or partial length walls to screen views into kitchens may address these concerns.
- Provide adequate and separate counter areas for food and dish washing, dish and pot drying, food cutting and preparation, temporary placement of pots next to stove while cooking, and food serving. The amount of space for each these activities will vary by unit size.
- In larger units, anticipate more than one person may be involved in food preparation or clean-up at each meal time. Provide a minimum of 30" of counter space for each person to be engaged in these activities without side to side or back to back conflicts.
- Consideration the functional and spatial impact of opening refrigerator doors, oven doors, and dishwashers, as well as movements between the sink, refrigerator, and stove.   When providing space in kitchens for non-cooking activities such as doing homework, eating, using the telephone, or doing the laundry consider the simultaneous use of all kitchen areas and appliances when allocating space for these other activities.
- Provide for bulk food storage and large pot and pan storage. Consider a "pantry" or other floor to ceiling storage areas in kitchens. Alternatively, provide damp and rodent proof area for food storage in other part of home or apartment.
- Provide identifiable areas for recycling.

Computer and Desk work Areas

- Computers and desks are often shared by family members, and could be located in common areas. A separate phone line may be required for this activity. Consider providing a specific area such as a recess off a room or hall large enough for this activity so that users will not be in the path of circulation or distracted by other activities.
- Computer locations should avoid direct sun or interior lighting on them,
- Consider that computers are utilized both for work and for recreation, and when used recreationally more than one individual may be engaged in the activity. Anticipate the need for occasional additional chair space and the potential noise.

Pros and Cons of Common Areas Combinations

To save space and cost it is often necessary to combine key common social spaces. The following discussion reviews the pros and cons of three of the most common combinations.

Alternative 1: Combine Living and Dining spaces together, with a separate Kitchen.

Depending on the size of household, the combined living/dining space will need to be approximately 20-24 feet long, and about 12 feet wide. The dining portion may be reduced to approximately 10 feet wide, depending on the location of wall space for dining related support furniture, door swings, and through circulation.

Potential Advantages:
- Can require the least amount of total area to accommodate all functions if properly configured.
- Provides for a large flexible space that allows the dining area to expand if and when required, or for the dining area to be in more than one location within the space.
- Living space is also flexible, as dining chairs and table areas can be used to expand the living areas for large gatherings.
- Can utilize one exterior wall as window area for entire dining/living area, potentially allowing for deeper building layout as well. Perception of a larger home created by one large room for living and dining.

Potential Disadvantages:
- No acoustical and visual separation between living and eating areas makes simultaneous use difficult under some situations.
- Living area cannot function as easily for occasional guest sleeping area.
- Living area cannot serve easily as a home office area or confidential conversation area

Ways to Reduce Disadvantages:
- Provide framed opening between living and dining zones wide enough for dining functions to spill into the living area for special use. Occupants can choose to install standard curtain rod or bifold doors at opening for privacy separation as needed.
- Bring light and air into dining area in event that living area is separated off by occupant, with secondary windows, skylights, or by views through kitchen to exterior.
- Provide a projecting kitchen or eating counter with leg room below or kitchen table area to allow for some family members to occasionally eat, do homework, or socialize within kitchen area.

Alternative 2:   Combine Kitchen and Dining area with a separate Living area.

The living area must accommodate seating and entertainment needs for the entire household at one time plus some guests. This will require an area of approximately 14 feet or longer by 12 feet wide. The Kitchen must accommodate a table and chairs for all family members with ample clearance from counters while seats are occupied.

Potential Advantages:
- Acoustical and visual separation of Living Area from eating area allows simultaneous use of different kinds of activities without conflict.
- Living area can function as occasional guest area or daytime work area while household members can continue to use dining/kitchen area as social area.
- Dining Table surface can be used for food preparation area when special meal preparation requires more surface area.
- Kitchen/Dining Area can become a social gathering place both during food preparation time and at other times, providing an alternative to the living area.

Potential Disadvantages:
- May require more square footage than for Alternative 1.
- Reduces options for location of eating areas
- May make expansion of eating area more difficult
- May make accommodation of many guests in the living area more difficult.
- Proximity of eating activity to cooking and clean-up activity area may offend some cultures or individuals.
- More wall area required or preferred for light and air to the kitchen room as it functions also as a dining area.

Ways to Reduce Disadvantages:
- Economize on total floor area required by providing built in banquette or window seat at appropriate height for eating.
- Arrange kitchen counter and position refrigerator, vertical storage cabinets, and other "screening" devices to partially block view of clean-up areas from dining table seats.
- Provide ample views to landscaped or deck areas with night lighting to offer attractive view away from cooking area.
- Provide wide opening between kitchen/dining area and adjacent common areas such as entry halls and living areas for occasional table expansions. Provide nooks or other separate spaces for computer desks or telephone seating outside the living area so as to reduce space needs in the living area and to allow for guest or work activity in the living area without inconveniencing the rest of the household.

Alternative 3: Provide two rooms of relatively equal size with a Kitchen between or with Kitchen access to both

While this scenario provides the greatest flexibility, it also requires that each "social" room be configured so as to be able to accommodate either living or dining function. The minimum "social" room size is approximately 12 feet by 15 feet, with larger space being required for larger families. The use of three feet deep alcoves or bay windows large enough to accommodate a sofa and end tables, or dining room support furniture could reduce the social room area to 12 feet by 12 feet for some household sizes.

Potential Advantages:
- Each household can decide in which room to place eating activities, and in which to place other social activities in response to cultural and individual requirements for both interior space and for exterior space.
- Three different areas of social activity are created.
- Acoustical and visual separation of Living Area from eating area allows simultaneous use of different kinds of activities without conflict.
- Living area can function as occasional guest area or daytime work area while household members can continue to use dining/kitchen area as social area.

Potential Disadvantages:
- The overall feel or perception of the unit is affected by having only "small" common rooms and no symbolically or functionally "bigger or great room".
- May require more aggregate space than either Alternative I or Alternative 2.
- May make expansion of eating area more difficult.
- May make accommodation of many guests in the living area more difficult.
- Lighting design must anticipate a variety of possible dining room locations.
- Circulation through and to rooms must anticipate different potential uses.
- Where kitchen is between the two rooms, arrangement of appliances and provision of circulation to and through kitchen may work better for use of one zone for dining as opposed to the other, unless anticipated n advance.

Ways to Reduce Disadvantages:
- Locate two social spaces adjacent to one anther with "French doors" or pocket doors between to allow them to be combined or separated as desired. (Configuration becomes similar to Alternate 1, but with primary perception of two adjacent rooms, not one large room.)
- Provide wide opening between each social room and adjacent common areas such as entry halls for occasional table expansions.
- Differentiate amenities of each room (one more open to the kitchen, the other more connected to the outdoor private area, etc.) that "suggest" the manner in which most households would use them, and provide lighting systems and budget for minor adaptations for households using them differently.