RENOVATION OF TURN OF THE CENTURY WORKING-CLASS HOUSING IN THE BOSTON AREA: understanding some issues for change

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Abstract

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In many of the outlying suburbs of the
Boston Area, woodframe, "working-class"
housing (built between 1870 and World War I),
form the majority of the existing housing
stock.

These structures frequently have to be
changed and adapted to lifestyles different
from those for which they were originally
designed, by persons inexperenced in the
knowledge of how these buildings work.

This thesis examines four of these types
of structures (two versions of the in-
expensive single family house, the two family
house and the triple decker); and presents and
explains a few basic design issues which are
important for evaluating the structures as
they exist and possible ideas.

Typical examples are discussed in terms of
their exterior relationship, interior circula-
tion, room use and organization. Following,
this, three case studies are presented repre-
senting a range of users making change (rent-
ers, owners, and community groups) and the
possibilities and limits which the structures
presented.

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Introduction

"It is no fault of the working man that he lives in a section of a house. He lives that way, because his work demands mobility and the price of the tenement is what he can afford. He is not in a position to be fastidious."

Albert Kennedy

By "turn of the century working class housing", I refer to those buildings (built between 1870 and World War I) which were built for the "working man" that Kennedy refers to above. They line many of the streets of the outlying suburbs in the Boston area, and in most of these form the majority of the existing housing stock. (Fig. 1)

These structures are continually being forced to adapt and change to life styles and conditions which are different from those for which they were originally designed.
This thesis is a presentation and explanation of some basic design issues which, if understood by an inexperienced person would offer him or her a means of evaluating the structure and his or her own ideas for possible changes.

This thesis deals with four basic turn of the century house types; two versions of the single family, the two family house and the triple decker. (Fig. 2)

The inexpensive single is used as a starting point because it was the preferred housing solution of the time. There are other versions and variations of the single that are not dealt with (side by side duplexes and row houses for example) because their issues are similar to those of the single.

The two family house and triple decker are used because they address the problem of hori-
horizontal organization on one floor and make up the bulk of this type of housing in the Boston area.

Examples of these structures have been taken from all over the Boston area, but attention is given to Cambridge, Massachusetts. It is typical of the towns in the Boston area where these structures form the predominant type of inexpensive housing.

The thesis is arranged in three parts:

The Building - its exterior relationship to the lot.

The Units - how they work in terms of their circulation, room use and organization.

The Change - how the above issue affects a range of changes in three case studies.

The first two parts discuss the issues in a graphics form using examples of the structures. The third part introduces three case studies which illustrate different degrees of change and how the above issues apply.

"the houses... are but the vestiges of an earlier rapidly changing society which built to the measure of the moment and then left its remains for others to use as best they could."
part 1: THE BUILDING
Background

In Cambridge, the inexpensive single family house was the predominate house type built before the late 1870's, but by the late 1880's two and three family houses were widely used.

These buildings were usually of wood frame construction and rarely designed by architects. Their plans were obtained from building guides, existing structures or local contractors' sketches; and drawn by carpenters and builders. (Fig. 5)

THE SINGLE FAMILY HOUSE

The single family house was built in two versions, varying in the position of the entrance.

The central hall type, which was popular before the 1870's, has its entrance and stair in the center of the house (Fig. 4b). It developed
as a small suburban alternative to the larger country house or cottage, and was more suited for a wide shallow lot.

The side hall type was derived from the dense central city row house. With its narrow side to the street and its entrance and stairs to one side, this type of structure was well suited for a deep, narrow lot which was frequently found in towns like Cambridge. (Fig. 4a)

After the mid-1870's this type replaced the central hall as the single type most frequently built.

These two types of single family houses occur in many variations. These commonly involve the bay window on the street side of the building.

FIGURE 4
a. side hall
b. central hall
Figure 5  Single Family House (Cont.)
Figure 6: Single Family Variations
MAINTAINING THE IMAGE

Before the 1870's, the single family house offered an adequate solution to the problem of inexpensive housing in outlying towns. Land was readily available and the image of streets lined with small well kept houses conveyed a sense of community and permanence.

After 1870, a steady increase in population and decrease in available land in these areas, made it necessary to find other solutions that could house more families in a given area. Three and four story apartment buildings were tried, but were not found compatible.

...there has been a very noticeable increase in the growth of the apartment house. Some of these obtain high rentals but they presage none the less the fall of the district. They make room for the nomadic family, and the family whose life was rooted in the city's life and growth is already disappearing.4
Until the First World War, the increased use of two and three family structures solved this problem by housing more families on the same amount of land, and still maintained the image of the single family house.

THE TWO FAMILY HOUSE

The two family house (Fig. 7) accommodated a family on each floor, and began to be built in greater numbers around the 1880's.

They were built to look like larger versions of the single family house. This larger size allowed the builder more opportunity to inexpensively add variety, involving different roof styles and varying window, bay and porch treatments.
FIGURE 8: Two Family Variations
TRIPLE DECKERS

Three family structures or triple deckers added one more family to the lot and became very popular in Cambridge in the late 1880's.

They are characterized by their flat roofs, which were necessary so that their greater height was not overly exaggerated when placed among smaller doubles and singles. (Fig. 9). Front and rear porches are also common.

Different bay and porch treatments, and a very occasional sloped roof gave variety to an otherwise homogeneous building type. (Fig. 10)
Figure 9 (Cont.)

Figure 10  Triple Decker Variations
Exterior Space

In a city like Cambridge lots can be seen in a variety of sizes, and commonly front a street at least on one side. Exceptions to this are corner lots which have two street frontages, and interior lots, (made from back parts of once larger lots) which may not have a frontage at all.

This street edge is of great importance because it is one of the prime locations for open space. Since most streets (and their respective lots) are not laid out with much concern for sun orientations open space is needed to insure adequate light.

The street edge is also the interface for public interaction. In the case of inexpensive structures where lots frequently were not much larger than the building itself, the buildings
are placed on their lots to maximize the useable open land. This was done by placing the building close to the street edge and to one side.

This way of placing the building creates front, side, and rear yards, whose sizes depend on the size of the lot.

THE FRONT YARD

I have observed two versions of front yards for inexpensive houses, which I will call small and moderate.

The small version is often about 5' deep. With adequate barriers, this space creates a small semi-private yard which provides a reasonable separation between the public side walk and the house.

The first floors of these older structures were raised off the ground, which made it easier for those inside the house to see out, than
those outside to see it. (Fig. 15a) This feature also aids in providing a satisfactory degree of interior privacy. In this version of the front yard, the entrance to the house is just large enough to accommodate the number of doors the structure has and is usually covered by a small canopy. (Fig. 15b)

Barriers were originally wood fences and/or plants or shrubs. These offer great variety, but required care and upkeep to maintain their appearance and insure their longevity. Wood fences and plants are still used today, but are vastly outnumbered by chain-linked fences. Although these require less care and maintenance they lack visual appeal. (Fig. 16) If the barriers do not exist, the pavement of the sidewalk may frequently be placed at the building edge.

I would classify the moderate version of the front yard as those five to fifteen feet in

FIGURE 13
depth. These are frequently seen in neighborhoods where two family houses are grouped together. (Fig. 14)

In this case, the added depth provides more separation, making it possible for a larger porch to be built.
FIGURE 16  Front yards
THE REAR YARD

The rear yard was and still is the exterior utility space. It offers a work space for dirty tasks and hanging clothes to dry, and a place of access to a rear entrance for deliveries. If space permits it also provides a storage place for tools and vehicles.

In the case of the single family house and the two family house, these functions are provided by the actual yard. In the case of the triple decker they were provided by back porches.

The rear yard also provided a means of access to a rear entrance used for service and delivery. In the case of the two family, the upper and lower porches were frequently connected the porch by a stair. This made it necessary to pass over the porch of the family below to make deliveries for the family above. This was an inconvenience that the family below could put up with because
they usually had use of the rear yard space. (Fig. 18a)

With the triple decker, the rear yard was usually just a circulation space. The stair had access to all three units, without having to cross anyone's rear porch. This equilizes the use of the rear porches by all three families. This is necessary because the porches in this case have taken over all the functions of the rear yard. Sometimes even the railings of the porches can frequently be seen to emulate the wood fences used at the edge of yards.

Although the back side of most triple deckers look rather disorderly, they do provide a space for the necessary, but unsightly, storage and utility functions. (Fig. 19) If the structure itself can provide other places for these functions, then the rear porch can accommodate other uses. (Fig. 20)
SIDE YARD

The side yards of all the types talked about are the most varied in terms of dimensions and use. Frequently, there may be no yard at all, or one just large enough for a person to walk through (about three or four feet). (Fig. 21 )

Side yards large enough for vehicles to park or pass (eight to ten feet) occur frequently, but in this case they are, more often than not totally paved over. (Fig. 21 )

In the case of the central plan house the side yard also had to serve as the access to the main entry. (Fig. 21 ) In this case the front yard almost becomes a side yard.
part 2: THE UNIT
Circulation

Circulation is one of the main factors in determining whether a unit works. The circulation patterns of two and three family houses are based on the patterns of the side and center hall single family houses. (Figs. 22, 23)
Since the side hall plan was used to a much greater extent, I will use it and its related structures as examples to discuss in more detail.

"Probably no room in the suburban house is more important than the hall..."

I agree with the above. The hall is the most important room when dealing with circulation patterns. The effectiveness of the circulation pattern of all the structures I am dealing with can be determined by looking at the hall, where it is placed, how it changes, and what functions it serves.

THE HALL INSIDE THE UNIT

The side hall plan, used in its original way, offers a fairly straightforward and workable circulation pattern. The hall forms the main circulation path for the house.

(Fig. 24a) Any of the first floor rooms can be
entered directly from it, and it also gives direct access to the bedrooms upstairs. Along with the hall there is also a secondary path through the rooms on the first floor, so that each room could be reached without necessarily having to enter the hall. (Fig.24c)

THE HALL OUTSIDE THE UNIT

With the population increase, a great number of these buildings were converted into two family structures.

The first noticeable change was the separation of hall from the rest of the unit. It now had to be used by both families, each having to get to their respective units without disturbing the other. (Fig.25) Having a direct entry to each room from the hall was now undesirable.

On the first floor, with only one of the hall doors as the entrance to the unit, what
had been the secondary circulation path was now the main system. (Fig.25c) On the second floor it was usually necessary to make openings in the interior walls to make the arrangement on the second floor comparable to that on the first floor.

The addition of a family above also made it necessary for an added stairway in the rear to provide both a second way out and a service entrance.

What once had been a straight forward plan was now altered into one in which the circulation was forced through most of the rooms, a situation which could divide them and make them hard to use. (Fig.26)

Fig.27 shows the second floor plan for a two family house. It exhibits many of the same features as the converted single. The hall is a public space outside the unit and the main circulation path is through the rooms. The dining room and kitchen in particular have a large part of their square footage devoted to circulation.

Three other two family houses with similar circulation patterns are shown in Fig.

THE HALL INSIDE AGAIN

In the triple decker, instead of the main circulation passing through some of the rooms, the equivalent space was turned into an enclosed
long hall. This made rooms on one side of the hall larger than those on the other. (Fig. 27)
The hall rarely went to the end of the house.
It usually ended at a public room like the kitchen or dining room. If the hall extended beyond, it would make these rooms too small to use.

Like the side hall plan, most of the rooms could now be entered directly from the hall, and a secondary circulation path existed (between the living and dining rooms).
FIGURE 30

[Diagram showing floor plans with labels such as "BR", "K", "DR", "LR", and "B".]

Legend:
- Orange - exterior circulation
- Blue - hall inside the unit
- Black - hall outside the unit

Scale: 1/2" = 10 feet
Room Arrangement

The placement of bedrooms played an important role in the organization of the other rooms in the plan. The bedrooms are placed and sizes differently in each of the three circulation patterns just mentioned.

THE VARIABLE ROOM

In the original side hall version, the living room was placed in the front. The dining room was placed at the rear on the light side and the kitchen at the rear on the dark side. The bedrooms, taking up the whole second floor, were variable spaces, since their location and size followed the outlines of the rooms below. Each bedroom was either entered from the hall or another bedroom. (Fig.31a)

THE PROPER SIZE AND PLACE

With the conversion to two families, the bedroom had to be placed on the same floor with the other rooms. Since the room was used at night, it was put on the dark side at the rear taking the place of the kitchen. (Fig.31b)

The kitchen functions were then combined with the dining room.
With two families in the structure there was room for only one bedroom per floor. If an addition were added for another, it was placed on the same side as the first bedroom. In this case the bedrooms were either entered via the kitchen or a bedroom. (Fig. 31c)

Two or more bedrooms on the dark side of the building were characteristic of the "through the room" circulation patterns. These bedrooms were approximately the same size (half the building wide) and were entered from the public rooms. This "same side/same size" relationship is characteristic of many doubles. (Fig. 31d)

THE VARIABLE ROOM AGAIN

The development of the long interior hall brought some changes to the above arrangement. The square footage for this hall was taken out of the dark side of the house. Since this hall could not end in a private bedroom, one bedroom was moved to the light side of the building. The bedrooms are now entered from the hall or the kitchen.

This arrangement was frequently found in later doubles and triples. In larger versions an added room was placed between the living rooms, This room was originally a more informal living
space, but was quickly converted into a third bedroom when necessary.

If this plan were doubled into what is known as a side by side triple decker (Fig. 10) then all the bedrooms have to be moved to the "light" side of the building since there are no longer any windows on the "dark" side. In the example given, the bedrooms are entered from either the hall or the dining room.

Fig. 32 is adapted from the triple decker previously shown in Fig. 7. It shows the plan divided into three groups of rooms: public, utility and private.

The public rooms (dining and living rooms) as stated before were placed in the most important positions, their importance accented by the use of bay windows. Frequently the living and dining rooms were linked with sliding doors or wide openings.

FIGURE 32

Nowadays, dining rooms are sometimes used as an informal living room or bedroom. In this case the dining function is handled by the kitchen.

The placement of the private rooms (bedrooms) has been previously discussed. These rooms are probably the most variable in terms of size and placement. Natural ventilation is the key factor.

Nowadays, there is frequently a need for
more bedroom spaces than the original plans called for. Particularly in the case of large families and units being shared by unrelated roommates.

For a long time the utility spaces were the least feasible in terms of their placements and subsequent change. Plumbing stacks (for the kitchen and bathroom fixtures) and chimneys (for kitchen stoves) were difficult to move once they were placed.

Baths were considered an expensive middle class luxury and were either not built in these structures or added later. It was not until the enactment of public health codes that they became common place. Basement showers and "closet" toilets can still be seen as minimal ways of adapting to these codes. (Fig. 33)

Figure 34 compares some typical turn of the century kitchen and bath equipment. The
size of the room needed to accommodate these appliances and fixtures, have gotten smaller over the years.

The kitchen is the room where this is most evident.

"The kitchen, first of all, should be well supplied with closets... There should be a large sink and ample drip board, good places for tables, plenty of light, and good ventilation."

ENCLOSURE - room edges

When dealing with rooms and spaces, it is important to know how they are defined and enclosed. In most of these structures the rooms are basically defined by walls of different types. (Fig. 35)

The solid wall (Fig. 35a) and the wall with small openings are the most often used. They are the easiest to build and the strongest, being frequently used as both exterior and interior bearing walls.

The wall with a large opening (Fig. 35b) defines and separates spaces while at the same time allows for a larger visual and circulation
link. Usually non-bearing, the opening either is left as is or provided with glass or sliding doors.

The bent wall or bay (Fig. 35) usually indicates importance. The bay was made to "catch" light and give a side observation point to view sides. In inexpensive structures, the bay's most valued asset is the extra floor area they add to the room.

The thick wall (Fig. 24d) was originally necessary to enclose the chimney in rooms like kitchens so as not to have "bumps" in the wall. They offered an excellent opportunity to add storage. As the building types developed, the

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**FIGURE 35**
thick wall lost its dependence on the chimney. They had now become two sided storage walls which could be placed wherever they were needed. An example of this is shown in Fig. Their thickness offers a lot of variety; but from the room they usually look like solid walls.
part 3: CHANGE

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Case Studies

This part consists of three case studies which illustrate ranges of change which are available to representative types of users of these structures in and around Cambridge.

All three case studies involve the triple decker, or one of its variations.

Each case discusses:

1. the person or persons making the change (the changer) and what restrictions he or she can make;

2. the changes that he or she made in light of some of the issues discussed in Parts 1 and 2; and

3. Conclusions about the relative ease or difficulties of the changes made.
CASE I - 15 Medford Street Arlington

- side by side, triple decker (6 family)
- no change in number of units

The Changer

Renter - the renter is representative of the most restricted changer group. By renting only a floor, he/she has limited control over his/her domain. Since the renter does not own the building, he/she cannot make major changes. He or she must depend on the arrangement of added furnishings and household articles.

In the plan shown, Unit A is rented by
two single roommates and Unit B by a family of four.

Changes Made

For the renter, actual physical change is usually limited to textural changes to walls and ceilings (paint, wallpaper, etc.) and light movable partitions and furniture.

In this case these changes were made, but the most significant change was the re-use and organization of the rooms.

Unit B is used very similarly to the way it was originally intended. Unit A is changed, having its dining room eliminated for an added informal living room.

Conclusions

This case illustrates the flexibility of the room arrangements. Both the units maintain the same circulation pattern even though they are used differently. The interior corridor allows for changes in room use without grossly affecting use of rooms nearby.

In the case of Unit A, the difference between the hall pattern in the front and through the room pattern in the rear helps to define the functions of each room.

Unit A, in this case, also illustrates ways which traditional relationships of rooms to outside edges can be changed.

The living room does not have to be in front. The dining room bay makes it easily transferred into a living room, and the kitchen is large enough to accommodate dining functions.
CASE II - 165 Elm Street, Cambridge

- triple decker (3 family)
- 3 units changed into 2 units

The Changer

Owner - the owner is representative of the group that potentially can make the most change. Since he/she owns the building he/she has control over it and the lot. However, the owner is restricted by the size of his lot and neighboring conditions. He or she frequently requires professional assistance if major changes are made.

Figure 38
This structure is owned and being renovated by a rehabilitation group with intentions to resell.

Changes Made

For the owner, actual physical change is only limited to his/her intentions and resources. Both interior and exterior walls can be changed and altered.

In this case, the 3 family structure was converted into a 2 family one, with some relocation of interior partitions. The exterior shell, the plumbing, the chimneys and the stairways remained basically unchanged; which is typical in this type of change.

Conclusion

This case is a good example of the advantages of the two circulation types discussed in Part 2. The "through the room" pattern remains on the first and second floor and is a good arrangement for the public social space. The added hallway on the third floor illustrates the effectiveness of the hallway in maintaining bedroom privacy.
CASE III - 204 Columbia Street, Cambridge

-side by side, four decker
(8 families)
-no change in number of units

The Changer

Community Group - Community groups are representative of a new way of providing change. By buying a parcel containing several buildings, they exercise maximum control over the buildings and surrounding land.

In this case the site and units were designed by an architect.

The Changes Made

A community group with several adjacent buildings can alter both interior and exterior walls, with the added advantage of changing the exterior spaces beyond the individual lot lines.

In this case, the exterior spaces of all
the buildings were combined into one scheme in which a pedestrian "courtyard" was added in the rear. This basically creates two "public" streets, in the front and in the rear of the building.

The number of units in the building remained the same, but were completely re-organized. The lower floors maintained the original two unit per floor format. The upper two floors were converted into four duplex units.

Chimneys were removed and the plumbing re-located, thereby eliminating two major re-arrangement obstacles.

The original stairs were reused and new ones were added inside the duplex units.

Conclusions

This is a good illustration of the change in relationship between the exterior spaces and the building which can occur when the divisions between individual lots are eliminated. It
also tests the ability of the building to be easily adapted to respond to the different exterior relationships and shows that with some work, it can be done.

The upper floors illustrate the effective use of the "through the room" and "hallway" circulation patterns. The former in the public rooms and the latter in the private rooms. The lower floors would possibly work better if the opening between the living room and the kitchen/dining area had not been closed.

The new pedestrian street makes the back just as important as the front. Either public or private rooms can now be located in the front or the rear. This gives the advantage of more varied room arrangements but the disadvantage, of eliminating the "useful" and formal exterior utility space that the original building offered in the rear.
More space along the exterior edge of the unit is freed by moving the bath to the "windowless" inside, now possible because of mechanical ventilation.
Notes

1. Kennedy, "Zone of Emergence", p.86


3. Illustration from "Plalliser's New Cottage Homes and details".

4. Kennedy, "Zone of Emergence", p.84

5. Illustration from 1970 Sanborn map.

6. Illustration from "How to Build, Furnish and Decorate".


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