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Hotel Renovation Projects and LCC

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Abstract
LCC analysis entails the calculation of cost over useful or projected life of an asset. However, building components and/or finishing materials do not usually complete their projected life spans. Certain types of buildings undergo renovations many times before they are declared redundant and finally torn down; hotels are a point in case. During such renovations and refurbishment works most of the finishing material is replaced by newer and more fashionable one. This study was conducted to ascertain which materials are most likely to be replaced well before their useful life ends and which are used to their full potential; the intent was also to determine the reasons for such replacements and the frequency of renovation projects.

Data related to renovation projects of three five star hotels in Ankara was obtained and analysed. An insight was gained into the reasons for renovation works, and the types and amount of material replaced. A comparison was made between the actual useful lives of such materials with their projected life spans.

It was concluded that finishing material and components that are used in hotel construction need not have long life spans, since they are likely to be replaced even before they start to deteriorate, or they should be recyclable. Also, conventional techniques which are designed for permanence (such as cementing, gluing or welding), should not be used for incorporating such material.

Keywords
LCC; Renovation projects; finishing material; hotels; Turkey

INTRODUCTION

All buildings deteriorate with time but their life span can be extended with regular, periodic and systematic maintenance. Maintenance and refurbishment are an important aspect of operations in the hospitality sector. Five-star hotels have to be even more particular in this respect as they have to provide not only comfort and specialized services to their guests but also style. In order to remain popular they have to keep up with fashions and trends in the hotel industry; this means that even if the furnishings and fixtures are in mint condition there arises a need to completely refurbish them again in keeping with the current style. Since Life Cycle Costing (LCC) focuses on the dollar cost

of building, operating, maintaining and refurbishing a structure throughout its life cycle, the costs for such refurbishment contribute significantly towards the high LCC of hotels.

The operational stage of a hotel life cycle is significant, both from an economic and environmental perspective. This phase, which includes running, maintaining and refurbishing, typically lasts from 25 to 50 years; on the other hand, with proper maintenance, regular refurbishment and renovation, the life span of a hotel building can be significantly extended. Some of the current operating hotels are located in buildings erected centuries ago [Bohdanowicz, 2003].

Stipanuk and Roffmann (1992) divide the life-cycle of a hotel in three phases. In the 1st phase it dominates the social and business scene because it is new, and investment in this phase is made to maintain its popularity. In the 2nd phase its popularity and occupancy rates diminish so it needs refurbishing to keep up with the competition. In the 3rd phase, changes in market demands result in either a change of management or a major overhaul. The authors further classify renovations of hotels into three categories: minor renovations that are undertaken every 6 years; major renovations that are done every 12 to 15 years, and restoration that needs to be done after 25 to 50 years.

SURVEY

The Turkish Ministry of Tourism specifies minimum standards for different types of accommodations for tourists. Depending on their category these standards outline the minimum requirements for guest rooms and other facilities to be provided in hotels. For example, in order to obtain a license for a five-star luxury hotel, the owners must provide such facilities as indoor swimming pools, saunas, convention centers for conferences, ballrooms to accommodate large social gatherings and congresses; meeting rooms with the latest technology, exhibition halls, movie theatres, shopping centers, restaurants, bars, and even discos. Similarly, the guest rooms can be equipped with specialized facilities to serve the diverse needs of the guests, such as non-smokers, left-handed or even disabled guests. There are around 220 five-star hotels in Turkey and nine of these are located in Ankara; data pertaining to three of them, which belong to reputable international chains of hotels, have been obtained. For the sake of anonymity, these hotels have been referred to as hotels A, B, and C.

Methodology

Data pertaining to refurbishment/renovation projects of the three abovementioned five star hotels in Ankara was gathered in January 2005. Two of these hotels belong to chains of international repute while one is a local hotel of historical importance which has recently been taken over by another international chain. Although, major renovations included such public areas as the lobby, conference- meeting rooms, ballroom, restaurants etc, only data for guestrooms has been analyzed in this paper, as the design decisions for one room is repeated hundreds of times over. The three hotels and the type of renovation works are described in more detail below. Table 1 lists the various types of accommodation available for guests in these hotels. In addition to those listed below, Hotel C has 2 Diplomatic suites and Hotel B has an entire floor converted into small apartments.

Table 1. Types of accommodation provided in five-star hotels of Ankara, Turkey.

	Presidential/ royal suite	standard rooms	standard suite	businessmen's / executive suite	Smart room/ club room	for non-smokers	for left-handed	for the disabled
Hotel A	1	110	26	23	14	0	0	2
Hotel B	1	323	26	51	0	0	0	0
Hotel C	1	250	32	2	23	24	5	3

Hotel A

Hotel A was the first five-star hotel to be built in Ankara, the capital of Turkey. This hotel was completed in 1966; and for the next 20 years it was the only five-star luxury hotel in the city. It consists of a built-up area of 22,920 m2 spread out on 22 floors (including 3 basements) of which 14 floors are devoted to standard guest rooms. The hotel has the usual facilities of restaurants, conference rooms, ballrooms swimming pool, etc.

This hotel has recently been completely refurbished by its new management and major changes have been incorporated. Although, the total number of guest rooms has been reduced from 193 to 176 the variety of accommodation being offered has increased and improved. For instance, the number of standard rooms has dropped from 178 to 110, while the number of suites has been increased from 14 to 26 and the number of executive suites from 1 to 23. Moreover, 14 rooms have been converted into club-rooms and 2 into special rooms for handicaps. To answer current needs, seven meeting rooms have also been added while the number of ballrooms has been reduced from two to one. Apart from improved accommodation, several theme restaurants and bars have also been built.

Hotel B

Inaugurated in 1986 this hotel has 16 floors reserved for guests, with 22 rooms on each floor. Moreover, a complete floor has been converted into extended-stay apartments. The 55m2 apartments include a bedroom, a living room, a kitchenette and a 50 m2 private terrace. These apartments are equipped with state-of-the-art facilities. In addition to standard guest-rooms and apartments, 51 executive rooms have been provided on the top three floors. The hotel offers an indoor swimming pool, fitness centre, sauna, a Turkish bath, two fully equipped meeting rooms and a ballroom that can accommodate up to 1,100 guests.

According to an earlier study on Hotel B, finishing material in guest rooms has been listed as follows: Ash veneered chip-board panels for suspended ceilings, vinyl wall-paper with timber beading for trimming, wood for pelmets and skirting and gypsum plaster and paint for exposed ceilings [Ozgurel, 2001]. However, all of these materials have been replaced recently without regard for durability. For example, robust wooden trimmings and ceilings have been discarded to install flimsy gypsum trims and tiles, for the sake of harmony with the new color scheme and style. All the guest rooms have been completely re-decorated in light colors with added features, such as a specially designed working desk equipped with high-speed internet connection and data-port, to facilitate a comfortable working environment.

Hotel C

A major renovation project was recently undertaken in Hotel C, where all the rooms, as well as the club lounge were completely refurbished in 2001-02. The renovations also provided an opportunity to incorporate the latest technology in the guest rooms and create an appropriate environment for both business and leisure guests. All guest-rooms have safes, modem connection, fast internet access, plus plugs suitable for both 110 & 220 V and energy saver.

Five rooms have been prepared for left-handed guests by incorporating special features, such as the opening direction of the doors and windows i.e. main entrance, mini-bar, in-room safe, placement of the electrical outlets, make up mirror and hairdryer. Also, specially designed left-handed amenities have been provided such as: ruler, cork screw/bottle opener, wall clock and even a reversed logo on guest pens. Additionally, three rooms and attached bathrooms have been specially designed to provide ease, safety and comfort to the disabled guests.

In 2003, construction on a new hotel wing comprising of a congress and cultural center was started and part of the existing ballroom area was demolished to be utilized as a foyer that is also the integration point for the Convention Center. This major renovation was undertaken to modernize the lobby as well as the theme-restaurants and bars.

RESULTS AND DISCUSSION

Data and information pertaining to the three hotel renovation projects was analyzed from the point of view of the reasons for and frequency of refurbishments, and the type and amount of material replaced. As mentioned earlier, since the volume and type of work may vary greatly in public spaces and since they are unique designs only guestroom refurbishments, which are repeated hundreds of times over, have been studied within the scope of this paper. Table 2 presents the volume of renovation work done on the guest-room floors of the three hotels; only those work items have been included that were common to all three hotels.

Table 2. Volume of renovation works in the three five-star hotels in Ankara, Turkey.

	DESCRIPTION OF RENOVATION WORKS		**Hotel A**	**Hotel B**	**Hotel C**
	CIVIL WORKS	**UNIT**	**QTY**	**QTY**	**QTY**
FLOORING	HEAVY DUTY BOARD ROOM TYPE FIRE PROOF CARPET (80 wool/20 nylon) WITH FELT UNDERLAYER FOR SOUND INSULATION	M2	7656	7272	7560
SKIRTING	HARDWOOD SKIRTING (VARNİSHED)	MT	970	8092	3296
FALSE CEILING	GYPSUM BOARD(FIRE RESISTANT) SUSPENDED CEILING	M2	6050	4413	4563
CEILING	SATIN FINISH ACRYLIC PAINT (3 LAYERS)	M2	8596	11921	4924
WALL COVERINGS &FINISHES	TEXTILE BACKED VINLY WALL PAPER	M2	15000	20041	12454
DOORS	WALNUT VENEERED SOLID WOOD FIRE RESISTANT DOORS WITH FRAMES AND FITTINGS	EA	370	720	387
FURNITURE/ FIXTURES	GUESTROOM FURNITURE UNITS INCLUDING ALL ACCESSORIES	SETS	177	352	180
FIXTURES	BATHROOMS	SETS	177	360	186

From the table above, it can be seen that the guest rooms underwent major overhauls. The walls were stripped and re-papered or painted; the flooring was replaced with new carpeting; the ceilings were re-painted or false ones replaced; new door-frames, -sashes and hardware were installed; all bathrooms were refitted and all furniture and furnishings were changed. In short, the structure is

stripped down to its core and fitted anew. The following three sections present some answers to the questions posed at the beginning of this research, as to the reasons for, frequency of and volume of refurbishment works.

Reasons for refurbishments

Renovation works in hotels are undertaken mostly from the point of view of customer satisfaction. In Hotel B the guests are asked to fill up a questionnaire to assess their satisfaction. Some of the questions are posed to determine those aspects which impressed the guests most. The aim is also to find out whether the guests were bored with the decor or not. Unless there is a sudden change in fashion trends refurbishment is planned and scheduled in view of this information.

Renovation of guest rooms, bathrooms and common/entertainment areas is mostly done to keep up with new fashion dictates on style and color schemes. Meanwhile, major renovation of rooms takes place also because there is a need to provide extra and different facilities to the guests. For example, to keep up with new technologies, the electrical wiring system had to be replaced in order to provide high-speed internet connection, data-port, satellite TV, DVD, fax machine, conference call availability photocopy/printer machines, as well as plugs suitable for both 110 & 220 V. Rooms for left-handed guests required replacement of all fixtures; whereas, rooms for the disabled had to be equipped with special safety features.

In view of the market demand some rooms were combined to make extra suites and some were converted into special guest rooms for non-smokers, disabled or left-handed guests, while some were knocked down and the space was used to build self-contained apartments for extended stay. Apart from guest rooms, major renovation works included the creation of theme restaurants and bars, hi-tech conference and meeting rooms.

Frequency of refurbishment

Hilton International Engineering manual gives the useful life of carpets in guestrooms as 6 years, drapes and spreads is 5 years, beds 15 years, mattresses 12 years, Venetian blinds 8 and furniture 10 to 12 years [Ozgurel, 2001]. However, the expected life or the predicted life of these materials is much longer in reality. Material such as ceramic floor tiles can last for more than 50 years and yet in Hotels B and C they were replaced after only 10 years. Marble flooring lasts for hundreds of years and yet it was replaced in Hotel B in order to keep up with the current fashions.

Hotel A is undergoing a major overhaul almost 50 years after it was first opened. Since the management has changed it was not possible to obtain information with regard to the frequency of refurbishment in this hotel. However, the bill of quantities for the renovation works stipulates a certain amount of material to be kept in store for contingencies in the next ten year period; hence we can assume the proposed renovation frequency is every ten years. On the other hand, Hotel B has regular renovation cycles in keeping with the recommendations of its management; minor renovations are done every 5 to 6 years, while major ones are done every 10 to 12 years.

In Hotel C the first renovations were undertaken after 9-10 years in the years 2001-2002, in the guest rooms only. The reason for refurbishing then was to replace the out-dated furniture with more fashionable one and not because the upholstery was worn out. In fact, the old furniture and furnishings were in such good condition that the hotel staff was given the option to buy them at

nominal prices. What could not be sold was sent to furbish the hotel's branch in Kusadasi, Turkey. This year the bathrooms, Lobby and restaurants are being renovated in this hotel. Since the color scheme in the bathrooms was very light and current fashion dictates darker shades, all the marble surfaces have been ripped out and replaced. On the other hand the lobby and restaurant floors were renovated to blend in with the style of the new annex building and even the façade was changed to create harmony and unity.

Type and amount of material replaced

The grouped data for the renovation of guest room floors in the three hotels was gathered from the Bill of Quantities (BOQ) of Hotels A, B and C. As mentioned earlier, data for only the guest rooms and corridors on the guest room floors has been analyzed. The BOQ is given as an appendix to this paper. It should be noted that since Hotel A was undergoing a major overhaul which involved conversion of rooms into suites, the amount of work is significantly more than that done in the other two hotels. Consequently, more variety and amount of material was used in Hotel A.

Most significant are the materials used for finishing the surfaces, such as vinyl wall coverings, carpets and suspended ceilings. Additionally bathroom fittings and fixtures as well as doors (with frames) have been replaced in all the hotels. For example, a total of 22,500 square meters of carpeting and 5,500 square meters of floor tiles were replaced. 7,500 square meters of the old suspended ceiling was replaced with 6,050 square meters of new one in Hotel A, while hotels B and C each had approximately 4500 square meters of suspended ceiling replaced. The walls were covered with embossed vinyl wall-paper, which was replaced with new wall paper to the tune of 15,000 square meters in Hotel A, 20,000 square meters in Hotel B and 12,500 square meters in Hotel C; most of this washable wall-paper is imported. The number of doors replaced with new ones is also significant; the number of new doors in Hotels A, B, and C were 370, 720 and 387 respectively.

CONCLUSIONS

Billions of dollars are spent on hotel refurbishment projects around the world. For instance, Hotel B belongs to an international chain which operates 2,700 hotels in 70 countries. This chain of hotels has spent more than a billion US dollars on renovating 'flagship' properties and its management states that renovations are on-going in the system in order to maintain excellence in appearance and accommodation. On the other hand, Hotel A has recently been taken over and renovated by another international chain of hotels which owns 91 hotels in 15 countries. Finally, Hotel C is one of the 730 hotels operated by its chain in 80 countries.

It therefore follows that, the BOQ presented in this paper is representative of the volume of refurbishment works in guest-rooms of 4,319 hotels, belonging to three international chains of hotels. This translates into more than 13,000 guest rooms. The total number of hotels all over the world are not accounted for, however just three chains are enough to demonstrate the enormity of the amount of hotel refurbishment works going on. The BOQ for renovation works given as appendix to this paper reflects the variety and volume of civil works that need to be carried out during guest-room refurbishment projects.

For a hotel to become a viable investment it has to be located in areas where there is a demand for temporary accommodations. These locations are either central business districts in large cities or near tourist attractions. Such locations are usually hard to come by, therefore, investors prefer to buy and renovate an older property. Refurbishments and renovations not only mean an enormous amount of investment every 10 to 12 years but also generate huge amounts of waste. Hence, any material that has been dumped as waste even before it has started to deteriorate due to wear and tear, let alone before the end of its expected lifetime, adds considerably to the LCC of the hotel.

RECOMMENDATIONS

As mentioned earlier, Hotel B had 4500 square meters of wooden suspended ceiling replaced by gypsum board false ceilings, which are not as durable as wood. Even the wooden pelmets were replaced with gypsum ones. From these examples it can be seen that sometimes good quality and durable materials are replaced with those of poorer quality and strength. Additionally, these materials and components, which are replaced in bulk just after a few years, are incorporated into the structure with permanent joints, anchors and glues. Since the hotel maintenance and renovation guideline dictate a shorter useful life than their expected life, it would be prudent to use replaceable material and components with de-mountable joints.

Since Furniture is changed after every 8 to 10 years it is advisable not to use fixed furniture or parts thereof, such as wall mounted headboards or night stands. It would also be more economical and healthy if floors were covered with wooden parquet or marble tiles depending on the climatic region, and rugs were used instead of wall to wall carpeting, which attracts dust and stains easily. These rugs can be washed or replaced at considerably lesser costs.

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APPENDIX

Table A1. Bill of quantities for renovation works in the three five-star hotels in Ankara, Turkey.

	DESCRIPTION OF RENOVATION WORKS		Hotel A	Hotel B	Hotel C
1	**CIVIL WORKS**	**UNIT**	**QTY**	**QTY**	**QTY**
A	**DEMOLITION WORKS**				
1A1	DEMOLITION OF BRICK WALL	M3	1250	148	
1A2	DEMOLITION OF R/C	M3	35		
1A3	REMOVAL OF SUSPENDED CEILINGS	M2	7100	105	
1A4	SCRAPING OF EXISTING WALL PLASTER AND CERAMICS	M2	2680	20119	
1A5	DEMOLITION OF EXISTING FLOORING AND REMOVAL	M2	8900	10054	
1A7	DEMOLITION OF PIPING AND MECHANICAL DUCTS	TON	350		

1A8	DISMANTLING ALL ELECTRICAL SYSTEMS	MT	15000		
	REMOVAL OF DOORS WITH FRAMES	SET		480	
	REMOVAL OF BATHROOM FITTINGS AND FIXTURES	SET		360	186
E	**FLOORING**				
1E1	LEVELLING CONCRETE	M2	1586		
1E2	SELF LEVELLING SCREED	M2	9500	9615	
1E4	CERAMIC FLOORING	M2	2805	2784	
1E7	HEAVY DUTY BOARD ROOM TYPE FIRE PROOF CARPET (80 wool/20 nylon) WITH FELT UNDERLAYER FOR SOUND INSULATION	M2	7656	7272	7560
1E8	1st QUALITY WALNUT FINISHED PARQUET FLOOR WITH VARNISH w	M2	1100		
1E9	MECHANICAL POLISHING OF EXISTING MARBLE FLOORS	M2	800		
1E10	BATHROOM DOOR THRESHOLD	MT	150		
1E11	SOLID WALNUT GUESTROOM ENTRANCE DOOR TRESHOLD	MT	150		
F	**SKIRTING**				
1F1	HARDWOOD(WALNUT) VENEERED OVER MDF VARNISHED SKIRTING	MT	5400		
1F2	HARDWOOD SKIRTING (VARNİSHED)	MT	970	8092	3296
1F3	CERAMIC SKIRTING	MT	2100		
1F4	SOFTWOOD SKIRTING (VARNISHED)	MT	450		
G	**CEILING**				
1G1	CEILING PLASTERING	M2	1670	11665	
1G2	GYPSIUM SPACKLING	M2	11170	7846	
1G3	GYPSIUM BOARD(FIRE RESISTANT) SUSPENDED CEILING	M2	6050	4413	4563
1G6	SATIN FINISH ACRYLIC PAINT (3 LAYERS)	M2	8596	11921	4924
K	**PARTITION WALLS**				
1K1	HOLLOW BLOCK BRICK WALL(20 CM)	M3	100	217.6	
1K2	GYPSIUM BOARD WALL (DOUBLE SIDED WATER &-FIRE PROOF)	M2	4150		
1K3	SINGLE SIDED GYPSIUM BOARD WALL	M2	1500		
1K4	GYPSIUM BOARD PARTITION WALL (DOUBLE PANEL)	M2	500		
1K5	HOLLOW BLOCK BIMSCONCRETE WALL (10*39*19)	M2	500		
L	**WALL COVERINGS&FINISHES**				
1L1	INTERIOR WALL PLASTERING	M2	12839	25497	
1L2	GYPSIUM SPACKLING	M2	12839		
1L3	SATIN FINISH ACRYLIC PAINT (3 LAYERS)	M2	12839	2662	
1L4	OIL PAINT(3 LAYERS)	M2	500		
1L5	CERAMIC WALL TILES	M2	3250		
1L6	WALNUT FINISH WALL PANELS (VARNISHED)	M2	240		
1L7	MARBLE WALL COVERING(TEXTURED FINISH)	M2	320		
1L8	COLOURED BACK GLASS WALL TILES	M2	200		
1L9	TEXTILE BACKED VINLY WALL PAPER	M2	15000	20041	12454
1L10	MIDRAIL ON CORRIDOR WALLS OF GUESTROOM FLOORS (150 MM) WALNUT VENEER OVER MDF+VARNISHED	MT	700		
M	**DOORS & WINDOWS**				
1M1	WALNUT VENEERED SOLID WOOD FIRE RESISTANT DOORS WITH FRAMES AND FITTINGS	EA	250	720	387
1M2	TOUGNENED GLASS SHOWER DOOR	EA	178		

1M6	EXECUTIVE SUITS FIRE RESISTANT WALNUT DOORS INCLUDING FRAME AND FITTINGS	M2	100		
1M7	SOLID CORE LAMINANT FACING WOODEN DOORS WITH FRAME	M2	120		
1M8	SOLID CORE SOUND PROOF WOODEN DOORS WITH FRAME AND FITTING	M2	20		
1M9	ALUMINIUM WINDOW FRAME REPLACEMENT WITH (4+4 DOUBLE GLAZING GLASS) 1/4 OF GUEST ROOMS	M2	710		
N	**FURNITURE/ FIXTURES**				
1N1	GUESTROOM FURNITURE UNITS INCLUDING ALL ACCESSORIES	SETS	177	352	180
1N2	UPHOLSTERIES & LINENS & DRAPERY & CUSHIONS	SETS	354		
1N6	SHELVING UNITS	EA	187		
1N7	ALL MIRRORS	EA	200	352	
	BATHROOMS	SETS	177	360	186