Analysis of Building Condition Audits and a Comparison of Ontario's Non-Profit Portfolio with the Local Housing Corporation Portfolio

Social Housing
Services Corporation

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1. Background of Study

SHSC conducted a survey of all Service Managers in March 2004 to ascertain the status of the building condition assessment/reserve fund studies (BCA/RFS) in each area. Many service managers have completed building condition assessments and reserve fund studies (BCA/RFS) on the non-profit housing and public housing stock and many are still planning to conduct portfolio wide studies but have not taken any action to date.

SHSC is in the position to provide tools to Service Managers for dealing with projected capital reserve funding shortfalls and the capital planning process, as we have the legislated mandate to pool the capital reserves of housing providers, from which all capital repairs and maintenance will be drawn.

2. Scope of Work

The scope of the work involved using the following the datasets as part of the analysis performed by a number of different consulting firms:

- Regional Municipality of Durham (LHC and NP Housing Providers)
- City of London (NP Housing Providers only)
- Regional Municipality of York (NP Housing Providers only)
- County of Lambton (LHC and NP Housing Providers)
- City of Peterborough (LHC and NP Housing Providers)
- County of Northumberland (LHC and NP Housing Providers)
- United Counties of Prescott Russell (LHC only)
- County of Renfrew (LHC only)
- Thunder Bay DSSAB (LHC and NP Housing Providers)
- Victoria Park Community Homes (NP Provider)
- Stoney Creek Community Homes (NP Provider)
- Regional Municipality of Peel (LHC and NP Housing Providers)

Some of the analysis used the full contents of the reports and some of the analysis used only portions of the data indicated above. This was primarily due to the fact that not all of the reports were formatted the same or used the same building element nomenclature making direct comparisons impossible in some cases.

In the past, some concerns have been raised in the past concerning either the veracity and accuracy of the data contained in a BCA and whether such a report was actually of practical use to either the Service Manager or the housing provider. Many indicated that capital plans have not or will not be accurate predictors of actual capital costs, due to active mitigation strategies (discussed in another SHSC report), regular maintenance and a perception that the projections are or were not reliable predictors. As projections hinge heavily on the assumptions made by consultants who generate the capital reserve plans, true capital shortfalls could be significantly higher or lower than those contained in capital reserve studies.

Given the perceived unreliability of their capital plans, Service Managers hesitate to have providers making long-term investment decisions based on these plans. As a result, the scope of the general study of the reserves situation was expanded to include examining the reliability of BCA reports across the province and establishing a provincial "average" that could be used to compare local BCAs that Service Managers commissioned, with a provincial average or standard.

Seven different consultants were involved in preparing the BCA/RFS reports. In-house staff at a Local Housing Corporation (LHC) did one additional set of reports, and for the purpose of this report they have been treated as the eighth consultant. To respect the confidentiality of the providers and the consultants involved they have been referred to in the report as Provider 1, 2, 3…. and consultants A, B, C…..

In essence, this study examines and compares the cost of the various building elements in a BCA and how they compare across various engineering firms and providers and compares the situation with a sample of the LHC portfolio.

The following activities were undertaken:

2.1 <u>Non-Profit Programs</u>

- Review the BCA/RFS data to determine similarities and differences for as many parameters as are commonly identified in the reports. For example compare the data from the sources to determined similarities and differences due to building types, age of structures, geographic locations, etc.

- Review the building element lists, the costing factors and the life expectancies used by different consultants. Report out on the variations in these factors and the affects on the resulting BCA/RFS reports. A sample of individual BCA/RFS reports would be useful to do benchmarking and comparisons of reports and standards to make recommendations on benchmarks and standards.

- Categorize the building element lists to determine practical differences between work, which is fundamental to the operation of the building such as roofing or elevators, and work which may be deferrable or of an aesthetic nature such as cabinet upgrades or landscaping.

- Complete some analysis to determine the possible savings, which may accrue if the above work is deleted or deferred.
- Identify the risks associated with deleting or deferring the above work.

- Make recommendations to service managers on best practices for them to use in future for capital reserve studies to ensure high quality results from future BCA/RFS work.

2.2 <u>Local Housing Corporations</u>

- Indicate the similarities and differences in the data between the non-profit portfolio and the LHC portfolio.

3 Building Condition Assessment Data Review

The BCA/RFS data was reviewed to determine similarities and differences for as many parameters as are commonly identified in the reports.

The following were reviewed:

- Major Building Categories
- Age of Structure
- Building Type and Size of Project
- Tenant Type and Provider
- Detail on Building Element
- Life Expectancy Comparisons

3.1 Major Building Categories

The following table indicates the *per unit, per year* costs for the major building categories as found by the various consultants. These are present value costs for the time period of the study. Consultants may appear several times in the table if they contributed to more than one RFS study. For instance Consultant A provided reports to three different providers. The sum of the categories does not necessarily add to the total because the *per unit per year* costs for the elevators and parking garages represent averages for only those buildings that in fact have elevators and parking garages, whereas the other numbers are averages of the entire portfolio. The consultant shown as *other* represent a collection of BCA/RFS reports which were older than the current studies and were data mapped into excel spread sheets and brought up to date.

		Consultant													
	Building Category	A	A	A	B	C	C	D	E	F	G	G	H	H	Other
LHC	SITEWORK	227			84			107	144	181	74	63			
	STRUCTURE	80			0				18	5	0	1			
	EXTERIOR	510			272			207	234	262	127	175			
	INTERIOR	900			564			382	389	349	437	492			
	ELEVATORS	82			0				115	15	5	25			
	ELECTRICAL	139			24			50	85	19	20	37			
	MECHNICAL	326			52			103	86	86	84	115			
	GARAGE	0			11				0	0	0	0			
	TOTAL	2,218			997	339		850	988	903	743	897			
NP	SITEWORK	205	158	134			110	97	171			69	82	36	155
	STRUCTURE	58	57	26			11		14			1	5	9	1
	EXTERIOR	293	358	675			472	276	329			268	253	159	370
	INTERIOR	1,334	962	911			592	506	482			621	535	433	704
	ELEVATORS	220	42	130			103		74			32	101	54	62
	ELECTRICAL	137	64	214			95	53	57			32	53	47	63

		Consultant													
	Building Category	A	A	A	B	C	C	D	E	F	G	G	H	H	Other
	MECHNICAL	511	246	668			164	123	136			147	152	99	171
	GARAGE	139	166				126		0			0	76	22	101
	TOTAL	2,731	1,927	2,557		1,192	1,607	1,056	1,228			1,153	1,159	845	1,576

There are many reasons why there may be variations in the unit costing. This report will discuss many of these reasons with further analysis.

3.1.1 <u>General Comments</u>:

- Consultant A tends to be consistently at a higher costing than the other consultants. The total dollar amounts for Consultant A are usually about 2 times the total dollar amounts most of the other consultants. It is possible that Consultant A is using high estimates as a means of managing risk or liability on their reports.

- Not withstanding Consultant A the remaining consultants tend to be relatively consistent with their costing.

- Not withstanding Consultant A, the LHC properties tended to be approximately $900 per unit per year. These consultants tended to find average per unit per year costs of $743 to $997 for the Local Housing Corporations (LHC). The $339 number represents only a few buildings and is likely an error in reporting the information. This consultant used an unusual format for their reports and it was not possible to extract more detail about this anomaly.

- In all cases, the consultants found the Non-Profit projects to be about 30% more expensive than the LHC portfolio. Not with standing Consultant A, the non-profit numbers range from $845 to $1,607, but there is a consistent group in the $1,200 range.

- The consultants found the Non-profit portfolio to average about $1,225 per unit per year.

- There is a general consistency in the costing in each category. Most consultants found little or no costs in the structural section. Consultants generally found these building elements would last the life of the building.

- The most expensive category was always the building interior. Usually about 45% of the total costs are attributed to building interior. Generally this is for flooring, cabinets and bathrooms. More detailed analysis on these building elements is provided in following sections.

4 LHC Properties vs Non-Profits

Lower per unit expenditures for the LHC properties is likely a reflection of the simple design of the LHC properties vs. the Non-profits. The LHC properties tend to be concrete block or brick veneer exteriors with little or no architectural design elements. The common areas in the LHC are usually more modest than in the non-profits. Interior elements tend to be vinyl flooring where non-profits may have carpets. Kitchen cabinets are often plywood in the LHC vs. designer cabinets in the non-profits. The LHC buildings tend to have very simply mechanical systems, often only electric baseboard heating. These simple mechanical systems may not be as energy efficient as newer technology but are inexpensive to maintain and relatively long lasting. Over all the LHC units are smaller in size than the non-profit buildings, so quantities for replacement are less in most categories.

As noted, up to 45% of the costs can be interior costs, which includes the finishes, the cabinets, the flooring, the appliances and the bathrooms. In general, non-profits tend to spend more per unit on the interior of the building. This may be a reflection of the fact that non-profit buildings have a market rent component. These prospective market tenants must be satisfied with the quality of the building before choosing to occupy the building.

In contrast, Local Housing Corporations have 100% rent geared to income tenants who are offered an apartment off a managed waiting list. Only a portion of non-profit tenants are *rent geared to income*. Non-profit providers who ignore the aesthetic features of their buildings would have trouble attracting market tenants and could face cash flow or financial problems due to vacancy from an inability to attract customers to their market rent units.

5 Age of Building Structure

The following table indicates the *per unit per year* cost in present value dollars separated by consultant and by year. The LHC portfolio was constructed mostly in the late sixties and early seventies and the Non-Profit portfolio was mostly constructed in the eighties and first half of the nineties.

		Consultant													
	Built	A	A	A	B	C	C	D	E	F	G	G	H	H	Other
LHC	1950	-	-	-	-	-	-	-	-	-	-	1342	-	-	-
	1960	2711	-	-	1316	-	-	1008	1105	1674	-	1101	-	-	-
	1970	2123	-	-	956	395	-	798	964	862	752	834	-	-	-
	1980	-	-	-	1199	311	-	-	1188	707	660	848	-	-	-

		Consultant													
	Built	A	A	A	B	C	C	D	E	F	G	G	H	H	Other
	1990	-	-	-	-	-	-	-	904	-	-	-	-	-	-
NP	1960	-	-	-	-	-	-	-	1785	-	-	-	843	-	-
	1970	2390	1645	-	-	-	-	1118	1734	-	-	-	1234	-	-
	1980	2699	2078	2452	-	1866	874	1010	1124	-	-	1201	1114	689	1571
	1990	3519	1871	2272	-	1025	1635	1053	884	-	-	1094	1564	886	1649

Conventional wisdom would dictate that younger buildings should cost less from a capital planning perspective than older buildings. This is not consistently reflected in the data.

There could be a number of reasons for this:

- The replacement of capital items follows cycles rather than being tied to absolute age. For instance a building, which is 15 years old, may be in the process of making significant replacements to the major mechanical items, which tend to have a life expectancy of 15 to 20 years. Whereas a building, which is 25 years old, may have completed replacement of the mechanical items but not yet begun to replace the major architectural elements such as windows or cabinets, so the 20 year old building will appear less demanding than the 15 year old building. This would result in the younger building seeming to be as expensive as or perhaps even *more* expensive than the older building.

- Most of the building condition assessments included in this study were for 20, 25 or 30 year duration. This time period is longer than the life expectancy of the most significant building elements; consequently the effect of the age of the building is obscured, as virtually all of the elements will be replaced at some time in the course of the study regardless of the actual age of the building.

- Newer buildings may have more sophisticated equipment, which is typically more costly to replace. The newer buildings are more likely to have air conditioning in them; as well, the heating systems in the older buildings are more likely to be electric base board, whereas the newer buildings will have more expensive fuel fired equipment, causing the newer building to appear to be more expensive from a capital replacement perspective (even though from an operating perspective, the fuel fired equipment may end up being more cost effective).

After an initial period following construction where all of the building elements are new and no expenditures are required, the capital costs in all of the buildings become substantive and on going.

6 Building Type and Size of Project

The following table shows the *per unit per year costs* by building type and building size. The *number of units'* column is a band to generally represent the size of the project. If the project has 10 to 19 units it will be represented in the 10 unit band, likewise if the project has 20 to 29 units it will be represented in the 20 unit band.

	Number of Units	Apartments	Townhouses	Detached	Semis
LHC	10	981	855	1406	1630
	20	862	1005	1269	1181
	30	789	739	1488	1801
	40	833	922	-	2468
	50	912	870	-	634
	60	794	2720	-	-
	70	522	-	-	-
	80	747	1200	-	-
	90	601	969	-	-
	100	756	953	-	-
	110	787	-	-	-
	120	1169	-	-	-
	160	1167	-	-	-
	170	-	2428	-	-
NP	10	1333	1852	6864	1481
	20	1333	2057	10315	1591
	30	2064	1134	-	-
	40	1308	2298	-	2289
	50	1593	1425	-	1432
	60	1397	2012	-	-
	70	1212	1285	-	-
	80	2211	1938	-	-
	90	1593	-	-	-
	100	1486	1863	-	-
	110	1705	1166	-	-
	120	1433	1005	-	-
	130	1735	-	-	-
	140	2617	1802	-	-
	150	1861	-	-	-
	170	-	1548	-	
	180	1400	1642	-	-
	190	1697	2193	-	-
	210	1392	-	-	-
	260	753	-	-	-
	350	1961	-	-	-
	430	1154	-	-	-

Sometimes there is an economy of scale and the *per unit per year* costs often reduce as the sized of the project increases. The data does not clearly show these results however it appears to be confused by the very high numbers from the Consultant A studies.

If the Consultant A data is excluded from the database for the apartments the data would appear as shown in the table below.

	Number of Units	Apartments
LHC	10	925
	20	828
	30	667
	40	833
	50	579
	60	794
	70	522
	80	761
	90	601
	100	700
	110	787
	120	706
	160	645
NP	10	984
	20	1139
	30	953
	40	983
	50	924
	60	1012
	70	939
	90	671
	100	937
	110	778
	120	849
	130	913
	430	1154

Once the Consultant A data is excluded there appears to be a reasonable trend on the data towards reduced *per unit per year* costs as the number of units increases for the LHC data. There is a similar general trend with the data for the Non-profits where the costs tend to reduce as the project size increases. The final data point of $1154 for a 430 unit project appears out of step with this trend however this data point is a single building with serious problems which date back over a number of years.

The data excluding Consultant A contains relatively few buildings with parking garages. Parking garages only occur in the larger apartment buildings and they can add significantly to the costs of the structure.

The above table also shows that townhouse complexes tend to cost more on a per unit basis, and likewise the costs of the semis and detached are higher still than the townhouses. The town houses tend to cost more because:

- Relatively speaking there is more roof per unit in the townhouses, semis and detached housing
- Relatively speaking there is more exterior wall, windows, and doors etc., per unit in the townhouses, semis and detached housing
- The townhouses, semis and detached housing are larger units and have more flooring and interior finishing per unit
- The townhouses, semis and detached housing tend to be for families, which puts additional wear and tear on the finishes.

7 Tenant Type and Provider

The following table shows the relationship between the *per unit per year* costs and the tenant type for each of the providers included in the study.

		Provider									
	Tenant Type	1	2	3	4	5	6	7	8	9	10
LHC	Family	2607	899	661	1290	1124	1148	-	-	780	-
	Integrated	-	-	347	904	727	-	-	-	-	-
	Adult	-	837	-	-	842	-	-	-	-	-
	Senior	1411	679	388	788	676	787	-	-	703	-
NP	Family	1723	-	1840	2477	-	1410	1159	1102	-	2347
	Integrated	1346	918	1052	630	-	1197	-	913	-	2167
	Adult	891	1165		-	-	962	-	671	-	
	Senior	1679	1023	1012	892	-	1015	-	680	-	2551

The table indicates that in all instances the family units are more expensive than the senior units. The designation of client type came from the EMI (Energy Management Initiative) database conducted by the Ministry of Housing several years ago. There was a limited usage of the terms *Adult* and *Integrated* in that survey and the table above have limited data in these two categories.

There is likely some level of interrelated correlation with other parameters, because tenant type is often connected to building type. Seniors are almost never in townhouse units; seniors are usually in apartments with elevators. Also, on average, the seniors' apartments are usually much smaller than the family units.

8 Detail on Building Elements

The table in **Appendix A** shows the percentage of the total costs spent on various building elements. Not all of the building elements are shown, only the more significant building elements. Only 9 of the providers are shown as some of the consultants used significantly different building element nomenclature and it was not possible to make direct comparisons.

9 Non-Deferrable Building Elements

Consistently flooring, roofing, cabinetry, windows, walls (ie painting in the units), bathroom up-grades make the top expenditures of all of the lists. Items such as the roofing, windows, exterior walls, and caulking are items that likely could not be deferred with out causing damage to the buildings, which would end up costing more to repair in the long run. Lack of repair for these items would likely result in water leakage into the building, resulting in rot, mould problems and damage to interior finishes.

10 Deferrable Building Elements

The high expense items such as the flooring in the units, cabinetry, walls (i.e. painting in the units), bathroom up-grades are more aesthetic in nature. There is more of a judgment call as to when these items may need replacement and that judgment depends on the standards considered acceptable by the management group. These items represent a significant portion of the total costs to maintain the building and this may be the area of focus when groups are looking for opportunities to extend their capital reserves.

For instance flooring in the units represents about 10% of the total capital costs. Many non-profits were originally constructed with carpets in the units. Experience has shown that carpets do not wear well and the provider often chose to replace the carpet with vinyl tile in the units once the carpet was due for replacement. The tile has a higher capital cost but a much longer life expectancy resulting in lower per year capital costs over the thirty-year period.

Kitchen cabinets represent about 6% of the total costs. Typically, to extend the life of the cabinets, providers need to choose cabinets styles where replacement parts (such as doors) are easily obtained for the lifetime of the cabinet. One common complaint heard from providers and the reason given for replacing building elements is the inability to get replacement parts. For example, window manufactures often do not provide springs, latches etc. more than a few years after manufacture, vinyl tile lots change constantly, and refrigerator plastic trays change with each subsequent model. Managers of housing projects should consider acquiring a stock of replacement parts when the item is first purchased and the parts are available.

Painting in the units is one of the larger expenses. There is likely some inconsistency in that some providers treat this as an operating expense rather than a capital expense. This inconsistency may be a reflection of the individual manager and determined by whether or not the project has an operating surplus or deficit.   Most groups no longer do cycle painting on a 5 year cycle. Most only do unit painting on move out of a tenant, however, where there are high vacancy rates, the unit turnover can be very high resulting in very high painting costs.

The greatest opportunities to extend the life of the capital reserve lie with those building elements at the top of the tables where the percentage of the costs is the greatest. Those building elements at the lower end of the table where the percentages are small may have limited opportunities and will not offer the same impact that managing the “higher level” may offer for the provider.

It is recommended that a standardized building list be developed for the social housing portfolio, as the description and number of building elements appeared to influence the level of detail in the building condition assessment. Consultant C (with unusually low per unit costs) used a building element list with only 30 elements and often grouped many building elements into a larger category with no break down. For instance all of the mechanical items were lumped together as *heating and ventilation total*. On the other hand, Consultant A used a Uniformat building element list which had over 400 building elements lists. Most used a variation on the Interim Asset Management System (IAMS) building element list used by the Ontario Housing Corporation before devolution.   The IAMS breaks the building into about 140 building elements, which appears to be adequate to properly describe the building.

11 Life Expectancy Comparisons

The table in **Appendix B** is a comparison of the life expectancy data used by the consultants. Six consultants are shown. Not every consultant clearly showed their life expectancy numbers in their reports. In some reports it may have been buried in their calculations but not explicitly identified. In one case a consultant used significantly different life expectancy numbers in two different studies. Some requests for proposal to conduct building condition assessments and reserve fund studies have come with appendixes indicating life expectancy guidelines to be used for that study. This may be the case for some of the life expectancy numbers used in these studies. In a few cases differences in the life expectancy of a particular building element may be a result of different materials in use, for instance the ten year life expectancy in flooring units is likely for carpets and the thirty year life expectancy is likely for vinyl floors; nonetheless, a twenty year life expectancy is also used for vinyl tile so this would represent a significant difference in costing. Building elements marked with an asterisk (*) in Appendix B are the building elements identified in the previous section which have the greatest percentage of total costs. These are the building elements where variations in the life expectancy will have the greatest effect on the depletion of the reserve fund balance. Nearly all of the consultants showed the life expectancy for structural elements to be much longer than the duration of the study or perhaps the life expectancy as being the life time of the building, as it would be more cost effective to tear down and replace the building rather than replacing the structural element.

The **parking lot** life expectancy varies from a low of 10 years to a high of 25 years with most consultants indicating a 20-year life expectancy. Assigning a ten-year life expectancy would effectively double the cost of the parking lots over a thirty year period as they would show up in the thirty year spreadsheet at least twice and possibly three times on a ten year cycle and only once or twice on a twenty year cycle.

Consultants show **roofing system**s as being between 15 and 20 years and caulking between 10 and 15 years. There is some significant variation in the life expectancy of the **windows** with some consultants showing a life expectancy of 15 years at the low end, and 40 years at the high end. This could be a reflection of the type of window installed in the project. Wood windows may have been installed at the time of construction and if not properly maintained may have as short a life span as 15 years. However it is unlikely that the same practice would be continue if new windows were installed, so carrying a 15 year life expectancy for windows may be overly cautious, and because window replacement is a significant percentage of the total costs it will have a significant effect on the projected replacement reserve over the thirty year period.

Like wise **interior painting** life expectancy varies from 7 years to 15 years and painting is a significant percentage of the total costs. These life expectancies may in fact be a reflection of information gathered at the site as some managers of properties indicted how often they paint. LHC properties have extended the painting cycles to the higher end.

The **flooring in the units** varies from 10 years to 30 years. The ten years likely reflects replacement of carpets and the 30 years reflects replacement of the vinyl tile. However, many BCAs used 20 years as the life expectancy for vinyl tile since flooring is perhaps the largest percentage of costs, this would have a significant effect on the reserves.

Tub, toilet and sink replacement varies from a low of 20 years to a high of 35 years and the kitchen cabinets vary from a low of 15 years to a high of 30 years. These are significant costs and often the replacement of these items is connected to the marketability of the units. The condition of the kitchens and bathrooms makes the single largest impression on a prospective tenant. Marketability is an issue, which cannot be ignored, especially in the non-profit sector where a loss of market tenants can result in significant vacancy losses.

When reviewing the life expectancy data for all of the consultants the pattern of variations from high to low do not appear to be random. Some consultants seem to be consistently lower in their life expectancy estimates for nearly all of the building elements. It would appear that some consultants have chosen to be more conservative in their estimates than others. As can be expected, the cumulative effect of being slightly lower in all of your life expectancies is to be significantly higher in the total expenses over the sum of a thirty-year period.

There can be a variation in the life expectancy of the building elements based on the experience of individual consultants. Many providers have issued the IAMS life expectancy guidelines with their Building Condition Assessment Request for Proposals, as a guideline to be used by the successful consultant. These guidelines were developed about 7 years ago, when the process of building condition assessments in social housing was in early stages. Experience from the past 7 years would indicate that the IAMS guidelines often under estimate the life span of some of the building elements.

There is a CMHC document titled "*Service Life of Multi-Unit Residential Building Elements and Equipment* " which sent the IAMS guidelines to many building managers and asked them to respond with their opinions as to the IAMS life expectancies and their own experience. The resulting report provides ranges of life expectancy for most building elements. Unfortunately the ranges are often quite broad. However, this is a useful guideline for evaluating whether the figures in a commissioned BCA is within a reasonable standard or level among peers in the social housing industry.

Appendix A – Detail on Building Element Lists

	Provider 1		Provider 4		Provider 5		Provider 6		Provider 11		Provider 7		Provider 8		Provider 9		Provider 10	
Type	NP	LHC	NP	LHC	NP	LHC	NP	LHC	NP	LHC	NP	LHC	NP	LHC	NP	LHC	NP	LHC
GRAND TOTAL	**100%**	**100%**	**100%**	**100%**	**-**	**100%**	**100%**	**100%**	**100%**	**-**	**100%**	**-**	**100%**	**-**	**-**	**100%**	**100%**	**-**
Floors - Units	12%	4%	6%	8%	-	8%	9%	9%	8%	-	16%	-	9%	-	-	13%	10%	-
Roofing Systems	6%	6%	9%	7%	-	9%	10%	8%	5%	-	6%	-	8%	-	-	6%	6%	-
Cabinetry	6%	6%	7%	6%	-	12%	7%	6%	5%	-	6%	-	3%	-	-	2%	3%	-
Windows	6%	5%	7%	6%	-	7%	4%	3%	4%	-	6%	-	2%	-	-	1%	5%	-
Walls - Units	4%	11%	1%	1%	-	1%	10%	10%	7%	-	5%	-	6%	-	-	11%	7%	-
Exterior Walls	4%	4%	2%	5%	-	2%	1%	2%	3%	-	2%	-	1%	-	-	2%	1%	-
Tub, Toilet, Sink	3%	6%	10%	13%	-	10%	11%	15%	-	-	8%	-	12%	-	-	18%	5%	-
Heating System	3%	2%	7%	5%	-	4%	4%	6%	4%	-	6%	-	3%	-	-	2%	2%	-
Caulking	2%	3%	1%	0%	-	2%	3%	4%	3%	-	2%	-	4%	-	-	2%	3%	-
Parking Lots	2%	2%	2%	2%	-	7%	2%	2%	2%	-	1%	-	1%	-	-	2%	1%	-
Ceilings - Units	1%	5%	1%	1%	-	1%	4%	5%	3%	-	2%	-	1%	-	-	5%	1%	-
Refrigerators	2%	1%	3%	2%	-	2%	3%	3%	3%	-	4%	-	4%	-	-	4%	3%	-
Doors	2%	2%	4%	4%	-	4%	2%	1%	2%	-	4%	-	4%	-	-	3%	2%	-
Walls - common areas	2%	1%	1%	1%	-	1%	1%	1%	2%	-	1%	-	1%	-	-	1%	1%	-
Driveways	2%	1%	4%	3%	-	4%	1%	1%	1%	-	2%	-	1%	-	-	1%	1%	-
Sidewalks	2%	2%	1%	1%	-	1%	1%	1%	1%	-	1%	-	1%	-	-	2%	1%	-
Stoves	2%	1%	3%	1%	-	2%	3%	2%	3%	-	2%	-	2%	-	-	1%	2%	-
Floors- common areas	1%	2%	1%	2%	-	2%	2%	2%	2%	-	1%	-	1%	-	-	1%	6%	-
General Landscaping	1%	1%	2%	3%	-	3%	1%	1%	1%	-	1%	-	1%	-	-	1%	1%	-
Air Make-up Systems	1%	0%	1%	1%	-	1%	3%	2%	1%	-	1%	-	1%	-	-	2%	1%	-
Domestic Hot Water Tanks	1%	2%	1%	1%	-	2%	2%	2%	1%	-	1%	-	1%	-	-	2%	1%	-
Elevator Hoisting Equip	1%	1%	1%	0%	-	1%	1%	1%	1%	-	3%	-	2%	-	-	1%	2%	-
Fencing	1%	1%	2%	2%	-	3%	1%	1%	1%	-	2%	-	1%	-	-	3%	1%	-

Appendix B – Life Expectancy Guideline Review

Building Element	Consultant						
SITEWORK	A(1)	A(2)	B	C	D	H	I
Driveways	10	20	25	10	20	20	20
Parking Lots *	10	20	25	10	20	20	20
Sidewalks	20	25	10	15	45	30	35
Fencing	15	15	25	20	35	30	15
Playground - Equipment		15				20	
BUILDING EXTERIOR							
Roofing Systems *	15	15	15	20	18	20	
Eaves Troughs		25	25	15	35	40	
Soffit & Fascia	25		25	25		40	
Caulking & Weather Stripping *	10	10	15	10	12	10	
Balcony Decks		15	25	25		35	35
Balcony Railings			20	20		35	
Windows *	15	30	40		35	40	15
Doors		20	40	20	40	30	20
BUILDING INTERIOR							
Ceilings-common areas				15		40	30
Ceilings - Units	7	7	10	15	10	10	12
Walls - common areas	7	7	7	10	10	10	12
Walls – Units *	7	15	15	10	10	10	
Floors- common areas	10	10	10	10	25	30	
Floors – Units *	10	15	20	10		30	15
Interior Doors - common areas	15		40	20		30	
Interior Doors - service areas	15		40	20		40	
Interior Doors - units	15		40	20		40	
Lighting Fixtures - common areas	10	25	20	10		40	35
Lighting Fixtures- -service areas	10	25	20	10		40	
Lighting Fixtures - units	10	25	20	10		40	
Plumbing Fixtures - common areas	10	15	25	20		30	
Plumbing Fixtures - service areas	10	15		20		30	
Plumbing Fixtures - units	10	15	15	20		30	
Tub, Toilet, Sink *	20		25	20	25	30	35
Appliances - refrigerators	15	15	15	15	15	15	15
Appliances - Stoves	15	15	20	15	15	20	15
Appliances - Washers	15		10			15	
Appliances - Dryers	15		10			15	
Cabinetry *	15	20	25	15	25	30	
ELEVATORS	20						
Elevator Cab	20			15		25	20
Elevator Hoisting Equip	20			20		25	20
Elevator Motor	20			20		25	20
Elevator Electrical Equip	20			20		25	

Building Element	Consultant						
SITEWORK	A(1)	A(2)	B	C	D	H	I
ELECTRICAL SYSTEMS							
Distribution Panel - Main	15	40		15		na	
Distribution Panel - intermediate	15	40		15		na	
Distribution Panel - unit	15		30	15		na	40
Transformer	25	25				na	20
Fire Alarm - Panel	15		15	15	25	25	40
Fire Alarm System - heat detectors				15		15	
Fire Alarm System - smoke detectors	15			15		15	
Fire Alarm System - Pull stations				15		15	
Fire Alarm System - Bell				15		15	
Emergency Generator	25					na	
Emergency Lighting & Signage				15	10	10	
Door Magnets				15		20	
Voice communication				15		20	20
Exterior Lighting	15		20	15		40	
Security Surveillance	15				30	20	
MECHANICAL SYSTEMS							
Heating System - common areas		20	25	20		20	
Heating System – units *	20	20	25	15	40	40	20
Air Make-up Systems	15			15		20	20
Exhaust Systems - bathroom	15			20		10	
Exhaust Systems - kitchen	15			20		10	
Exhaust Systems - centralized	20		20	20	25	20	18
Domestic Water Supply and Distribution	15			20	30	40	
Domestic Water Shut-off Valves and Mains		40	25	20		40	20
Domestic Water - Risers		40	25			40	
Domestic Water - Units			25			40	
Domestic Water - Hot water Tanks				12	12	10	
Fire Hydrants				25		50	
Fire Alarm- Sprinkler System	25			25		25	
Fire Hoses	10			10		15	
Sanitary Waste Removal System						50	
Storm Water including Roof Drains	25			25			
Garbage Collection and Compactor	15			15		20	15