NOBLIN & ASSOCIATES, LLC

Consulting Engineers

RESERVE STUDY

SPYGLASS LANDING CONDOMINIUM

MARSHFIELD, MASSACHUSETTS

SUBMITTED TO:	Spyglass Landing Condominium Association c/o Arbor Management 1 Snow Road Marshfield, Massachusetts 02050
SUBMITTED BY:	Noblin & Associates, LLC 4 First Street Bridgewater, Massachusetts 02324
DATE:	October 2016

INTRODUCTION

In the Fall of 2016, Noblin & Associates performed a Reserve Study at the Spyglass Landing Condominium in Marshfield, Massachusetts. The purpose of the Reserve Study was to determine the remaining useful lives and replacement costs of common area elements. A thorough inspection of all common areas was performed.

BACKGROUND

The Spyglass Landing Condominium was constructed between 2004 and 2006. The Condominium includes a total of 84 separate Units within 28 buildings. Roofing consists of medium weight random tab asphalt shingles. There are seamless aluminum gutters installed continuously at the front and rear elevations. The exterior walls are covered with double 4" PVC (vinyl) siding, which replicates the looks of clapboard siding, polypropylene shingle siding, and aluminum clad wood trim.

There are solid vinyl double hung and casement windows, pre-hung insulated entry doors, embossed metal overhead garage doors, and solid vinyl sliding glass panel doors at all Units.

The roadways and parking areas consist of bituminous concrete (asphalt) bordered by extruded asphalt berms. Landscaping generally consists of planted lawn, with a series of mulched and planted areas. There is a centrally-located gazebo and bocce courts near the mail station.

According to the Master Deed, the boundaries of the Units:

(i) Floor: *The plane of the upper surface of the concrete floor slab.*

(ii) Roofs: *The plane of the unfinished interior surface of the attic roof rafters.*

(iii) Walls, Doors and Windows: *As to walls, the plane of the interior surface of the wall studs or, in the case of concrete walls, the interior surface of the concrete walls facing the Unit; as to the exterior doors, the unpainted surface thereof; as to the exterior door frames and window frames, the unpainted exterior surface thereof; and as to the windows, the exterior surface of the glass. As to interior building walls between units, the plane of the interior surface of the wall studs facing each unit.*

(iv) Garage: *As to the garage appurtenant to each unit, the plane of the upper surface of the concrete floor slab, the plane of the lower surface of the interior surface of the roof rafters, and as to walls, the plane of the interior surface of the wall studs and/or concrete walls facing the garage; as to the exterior doors, the unpainted exterior surface thereof; as to the exterior door frames and window frames, the unpainted surface thereof; and as to the windows, the exterior surface of the glass.*

The Master Deed further states that "all screen windows and doors, whether interior or exterior, shall be the property of the Owner of the Unit.

For the purpose of the Reserve Study, all original common area elements at Spyglass Landing Condominium will be considered an average of 11 years old.

FINDINGS

Following is a compilation of information derived from various sources including background information and visual inspections. No destructive examination (i.e. roof, wall or soil removal) was performed.

Asphalt Shingled Roofs

The shingles on the buildings are a medium weight, random tab variety. The roofs are of fairly simple design, with only woven valleys at the dormers and garage roofs breaking up simple ranch design.

The shingles were found to be well adhered at the sample units. The roofs have few penetrations, which are typically where a roofing system will leak. The only "flashing-dependent" locations are the small cheek walls that separate some of the Units. Penetrations in the rear consist of plumbing vents that are flashed into the roofing shingles with prefabricated pipe boots, and Type B gas vent stacks that utilize self-flashing bases (see photos).

Due to the simple design of the roofs, the only likely future maintenance will consist of occasionally replacing torn pipe boots. The neoprene portion of the boots tends to split over time due to the harsh New England climate. No immediate needs were noted relative to the roofing shingles.

We did note some locations where the units merge that appear potentially vulnerable to leakage. In many cases, the units merge at a step-flashed cheek wall, some of which end against adjacent roofing systems, and appear vulnerable to trapping water, snow or ice (see photos). Without a complete re-design, little can be done about this now, but if any leakage were to occur in the general area, we would suspect a flashing/underlayment deficiency where the units meet.

Ventilation of the roofing system is accomplished with fully-perforated soffit vents, and shingled-over (non-baffled) ridge vents. Current Code requires 1 square foot of ventilation for every 150 square feet of "attic space". This requirement is reduced to 1:300 if there is either a full vapor barrier present, or if more than 50% (but no more than 80%) of the ventilation is provided by ventilators located in the upper portion of the space to be ventilated. An average unit includes approximately 48' of ridge vent (providing 16.9" of net free air per foot) , and 60' of ventilated soffit (providing 5.9" of net free air per foot).

An average sized unit includes approximately 2,080 sq. ft. of space to be ventilated. Based on that area, a total of 6.93 sq. ft. of net free air is required to comply with Code. The ridge vents provide 5.63 square feet of net free air, and the soffits provide 2.46 sq. ft. of net free air. Based on the sample unit, ventilation complies with current Code.

For the purpose of the Reserve Schedule, we have assumed a full 30-year life for the roofing shingles. We would recommend having the roofs inspected occasionally, so that any minor flaws can be identified and repaired. Typically, it is best to perform roof inspections following Winter, and after any major storms, especially storms accompanied by strong winds.

Gutters and Downspouts

Standard 5" seamless aluminum gutters are installed at all front and rear fascia locations. The gutters are attached via a bar hanger system. The gutters drain to standard, corrugated aluminum 2” x 3” downspouts. The downspouts spill to grade at the rear of the units, and to the sub-grade drainage system at the front of the units.

The best time to replace gutters is during roof replacement. Replacing the gutters with the roofing allows for the best possible underlayment and flashing details at the eave. We did note some damaged downspouts, likely caused by landscaping activities. If the damage is severe enough to restrict drainage, the individual sections should be replaced.

For the purpose of the Reserve Schedule, we have assumed a full 30-year life for the gutters and downspouts, reflecting replacement in conjunction with the roofing shingles in approximately 19 more years.

Exterior Walls – Vinyl Siding and Aluminum Clad Trim

The exterior walls are covered with double 4" PVC (vinyl) siding that replicates the look of clapboard siding. Trim is covered with aluminum cladding. Vinyl siding is a very resilient and long-lasting product which when installed properly, requires virtually no maintenance beyond occasional powerwashing.

In general, the siding at Spyglass Landing appears to have been very well installed, and should provide a full service life. At this time, the condition of the siding is such that we feel it could remain in serviceable condition beyond the 30-year scope of this study. However, when factoring in inflation, replacement of the vinyl siding and trim will be the most expensive replacement item that the Association will have to address. With that in mind, we are advising beginning to fund its replacement at this time. In our experience, when a major item like the siding is left off of the Reserve Schedule initially, funding often doesn't begin until the life cycle of the item begins to approach it's end. With that in mind, we feel it is prudent to begin funding now.

Some minor damage was noted at the base of the walls, again likely caused by landscaping activities. In some instances, the siding is less than 6" from surrounding grade. Although Code allows vinyl siding to be close to grade, the underlying framing members are required to be at least 8" above grade. The vast majority of the buildings have adequate clearance from grade. The damage

at the base of walls is largely an aesthetic issue which will not significantly impact the performance of the siding.

For the purpose of the Reserve Schedule, we have assumed a remaining useful life of 30 years for the vinyl siding and trim. In our experience, a total life of 40+ years is not unreasonable to assume for well-installed PVC siding.

Windows and Doors

Based on the Unit Boundaries from the Master Deed, the windows and doors are understood to be the responsibility of the individual Unit Owner with respect to maintenance and ultimate replacement. With that in mind, the doors and windows will not appear on the Reserve Schedule.

The windows at Spyglass Landing would be classified as a fairly high quality, residential grade. With all but the highest quality, commercial or architectural grade windows, some amount of air infiltration is to be expected during severe, inclement weather. Minor draftiness with a residential grade window is to be expected, and is not necessarily indicative of a window problem.

The majority of the windows in the Units are a solid vinyl, double-hung style. There are also vinyl casement windows in the kitchens. Due to the weather-resistant exterior, we would expect the windows to provide a service life at least on par with the siding. In fact, many (perhaps most) of the windows could

remain serviceable beyond the 30-year scope of this study. As was discussed relative to the gutters and roofing shingles, the best time to replace the windows (and doors) is when the siding is replaced. This allows for proper integration of flashings and underlayments which is not as easy if the windows and siding are replaced as separate projects. While far off in the future, coordinating replacement of the windows in several Units as a single project should result in some cost savings, when compared to replacing the windows in a single Unit. Again, we expect the windows to provide a useful life in excess of the 30-year scope of this study.

Each building includes areas where there are what appear to be MDO (medium density overlay) panels around windows. We noted several of them have begun to rot (see photos), likely as a result of the failure to properly coat the cut ends prior to installation. This office would advise that any such rot be addressed by removing the deteriorated pieces, and replacing them with new cellular PVC trim. This issue is not widespread at this time, but is expected to accelerate as the property ages.

The main entry doors are embossed metal or fiberglass units with two 12" sidelights and a transom window above. The doors are mostly sheltered from the elements behind fully-glazed storm doors. The doors themselves should provide a very long useful life, likely at least 25 years. Some of the trim around the doors, and the kickboards, are beginning to suffer some deterioration, and

may need to be addressed in advance of full door replacement. According to the Master Deed, the doors fall within the Unit boundaries, and replacement will not be included on the Reserve Schedule. However, it is unclear with whom (unit owner or common area) the cost of replacement of deteriorated door trim lies. As a minimum, the wood trim should be consistently prepped and re-painted to maximize its useful life.

We noted some accelerating trim rot at the exterior doors on the utility rooms (see photos). The doors themselves are pressed-metal units, some of which have also begun to suffer from surface rust. These doors would appear to fall outside of the unit boundaries, and we have included their replacement in approximately 9 more years on the Reserve Schedule (Item #4). The estimated replacement cost reflects removal and replacement with a new equal.

There are solid vinyl sliding glass panel doors, as well as some French-hinged doors, at the rear decks. The sliding glass and French-hinged doors should provide a very long useful life, again, likely in excess of the 30-year scope of this study. According to the Master Deed, the doors are Unit-owned, and replacement will not be included on the Reserve Schedule.

All of the Units include 16' x 7' embossed metal overhead garage doors. Again, the Master Deed places the exterior doors at the garages within the Unit boundaries, making their replacement a unit expense. With that in mind,

replacement of the overhead doors has not been included on the Reserve Schedule. In our experience, this type of door will typically provide a useful life of around 25 years.

Foundations

The buildings rest on poured concrete foundations. No widespread problems were reported or observed relative to the foundation assemblies. This office saw nothing to indicate any other issues with the foundations. The foundations have potentially indefinite service lives, and should remain serviceable far in excess of the 30-year scope of this study.

Dampproofing of the foundation is accomplished via a typical roller- or spray-applied bituminous coating. Although Code-compliant, this type of dampproofing does not have the ability to bridge cracks in the foundation. Cracking of concrete as it cures is unavoidable, and not indicative of any problem. However, since it cannot bridge cracks in order to keep water out, it is important to make sure adequate slope away from the foundation is maintained.

Decks, Steps and Landings

Each Unit is serviced by a wood-framed, post-supported deck at the rear. Fifty-

six of the unit decks are open to the weather, while 28 have been enclosed with sunrooms at the owner's option and expense. According to information provided to this office, when a deck has been converted to a sunroom, the deck framing, decking and footings remain a common area expense, while the sunroom itself (i.e. wall panels, windows, roofing) are the responsibility of the individual unit owner with respect to maintenance and ultimate replacement.

The smaller decks are approximately 120 sq. ft., and the larger decks are approximately 160 sq. ft. The deck framing and posts are all of preservative-treated wood. Where visible, the footings appear to be typical sonotube footings, although the depth is unknown. Code dictates that the footing be placed to a point below the frost line (typically understood to be between 3' and 4' in this area). This office saw no significant settlement or other evidence to indicate that the footings are insufficient.

The decks utilize synthetic decking and top railing caps. The railings themselves are also of preservative-treated lumber, with 2 x 4 top and bottom rails, and 2 x 2 balusters installed with nails. Many of the nailed components were found to be suffering from cracking, splitting or other damage (see photos). It appears that some of the nailed connections have been augmented with lag or carriage bolts. It's unclear if the bolts were a part of original construction, or if they were added after the fact. We suspect that many of the decks will require

remedial repairs, in the form of augmenting nailed connections that are failing, in order to achieve the anticipated remaining life of 14 years.

This office has some concern with the way the stair stringers are attached to the main decks. In some of the locations that were directly examined, they are fastened with 2 x 4's nailed to both the deck frame and stringer ledger (see photo). A much better attachment detail would utilize either lag or carriage bolts, or as a minimum, rated screws. We noted some locations where the stringers appear to be pulling away as a result of poor attachment (see photo). This issue is not widespread, but monitoring of the deck stringers should be a regular part of site maintenance/inspection.

We also noted a few stair stringers that appear to have settled. The most severe such location was found at the rear deck of 22 Schooner, where the steps appear to have settled over 1" (see photos). This appears to be the result of inadequate (or omitted) stringer footings. It seems that many of the steps rest only on the concrete pads at the bottom of the steps.

For those units which have been converted to sunrooms, we have extended their anticipated useful life 10 years beyond that of the open decks. This is reflective of the fact that the framing materials and other "common" components are sheltered from much of the weather that the open decks face. With that in mind, we have assumed a remaining useful life of 24 years for the

sunrooms (Item 6). The estimated replacement cost reflects replacement of the deck structure itself, and does not include the "unit owned" portions of the sunrooms.

Front entry to the Units is via pre-cast concrete steps, which were all found to be in good condition. The pre-cast steps are bordered by metal handrails. The metal handrails are in good condition at this time, and should provide a very long useful life. We did note a few locations where the paint has peeled off of the handrails. Any such locations should be re-painted for both aesthetics, and to protect the handrails. The pre-cast steps and associated railings should remain in serviceable condition beyond the 30-year scope of this study.

Pavement

The roadways, driveways and parking areas are paved with bituminous concrete. The pavement is surrounded by low-profile "Cape Cod" berms. The berms have been damaged by snowplowing activities in many areas. Damage to the berms is nearly unavoidable during snowplowing.

The pavement is in what this office would consider "age appropriate" condition. We did note cracking throughout the property, but the vast majority of the cracks have been sealed (see photos). We also noted some apparent

"settlement cracks" around catch basin grates and man holes, but not anything excessive.

Crack sealing must be a regular part of pavement maintenance, and should be an ongoing process. It is critically important to seal pavement cracks on an annual basis, preferably before every Winter. The cracks most commonly occur at course lines, driveway transitions in the pavement, or at penetrations. When water gets below the pavement, it can cause frost heaves or wash-out of the substrate, which will lead to settlement.

Sealcoating should be considered as the pavement ages. Sealcoating will protect the pavement from UV damage, and can seal cracks too small to be detected during traditional crack sealing. Sealcoating also will unify the appearance of the pavement, which is often needed when crack sealing becomes extensive. It appears that the driveways have been sealcoated in the recent past, but it does not appear that the roadways ever have been.

For the purpose of the Reserve Schedule, we have assumed a 25-year remaining life for the asphalt surfaces. Achieving this long a life will require fairly aggressive remedial maintenance, as descirbed previously. Without aggressive maintenance, it is likely that the asphalt will require replacement when it reaches approximately 20 years of age.

The estimated replacement cost is based on pulverization and recovery of the existing pavement, and application of a new, two-layer system. Pulverization

and recovery has become very popular, as it eliminates the cost of disposal of the original asphalt, and it results in a thicker overall system.

Fencing

The perimeter of the property is bordered by a cedar picket fence behind the units on Clipper Circle. The fence is a fairly inexpensive cedar picket style, and is approaching the end of its useful life. We have estimated its useful life at 3 years. The estimate replacement cost reflects installation of a higher-quality PVC picket fence.

Concrete Walkways

There are Portland cement concrete walkways bordering the roadways and accessing the unit entries. There are also concrete walks at the central gazebo and bocce area. It is our understanding that approximately $20,000 worth of the concrete replacement was recently performed. However, for replacement purposes, we would expect that the concrete sidewalks and walkways to be replaced as a single project. As the Reserve Study is updated, this may be revised to reflect “physical” aging, which is much more significant than chronological age.

The walks vary widely in condition, and as noted, several individual panels have been replaced recently. The anticipation is that selective removal will continue to be required until such time that the concrete walks are replaced. Normally, sidewalks and pavement are intimately connected, and we would advise replacing both items during a single project. However, at Spyglass Landing, they are physically separated by a strip of grass, allowing for replacement independent of one another. Where the driveways meet the roads, the pavement and concrete do merge, and optimally, would be replaced together.

We noticed differential settlement in several areas that have created tripping hazards (see photos). When tripping hazards arise, if the concrete itself remains in good condition, grinding the lifted portion down flat is an option. From a planning standpoint, we feel that with aggressive maintenance, and replacement/grinding as the need arises, the walks in general can likely remain in safe condition for another 19 years, at which point they will be 30 years old.

Pavement/Concrete Walk Summary

While the physical separation between the sidewalks and the roadways in most locations would allow for replacement independent of one another, and we have listed them with remaining lives of 14 and 19 years respectively, the optimal approach would be to address both items as a single project.

With that in mind, we would suggest being very aggressive with maintenance of the pavement with the intent of maximizing its life to the point that they both require replacement at the same basic time. With very aggressive maintenance, it is possible that both could be extended out for another 20 years. There are many functional as well as economic advantages to performing both of these major infrastructure projects at the same time. There is also much to be said about only inconveniencing the residents one time, as opposed to performing multiple projects.

Exterior Lighting

There are a variety of wall -mounted light fixtures at the entry doors, above the garage doors and at the rear decks of the buildings. The lights appear to be incandescent types.

Light fixtures have very unpredictable service lives, and this office typically recommends a small annual allowance to address failed light fixtures as the need arises. With that in mind, replacement of the lights will not be included, and we will suggest an annual allowance of $500 for exterior lighting repairs.

Grading and Drainage

Current Code Section 3604.1.3 requires the grade to slope away from the

foundation at a rate of ½" per foot for a distance of at least 6'. The versions of Code in effect during construction included virtually identical language. For the most part, the site complies with this Code requirement, although as with any large site, there are some exceptions where grade does not appear to comply. In general, grading is acceptable.

As was noted in the Exterior Walls section, several areas were noted where surrounding grade is very close to the siding. This has caused some of the vinyl siding to become damaged from landscaping activities. Unfortunately, increasing the clearance in some locations will result in violating Code requirements for grading.

Drainage of the roadways is via a series of catch basins, which are understood to direct water to the on-site retention areas. No problems were reported or observed relative to site drainage.

In general, grading and drainage are acceptable and Code-compliant. No immediate needs were noted.

Gazebos/Mail Station/Signage

The centrally-located gazebo is in good condition at this time. With adequate maintenance, consisting or repainting as the need arises, the gazebo can likely

be maintained for many more years. With that in mind, we are suggesting a small annual allowance of $250 to make minor repairs and to paint the gazebo as conditions dictate.

The central mail station includes a series of 7 boxes mounted on the concrete slabs. The boxes are fairly resilient, and in good condition at this time. Assuming items like lock cylinders are replaced as the need arises, the boxes can likely be maintained for many more years. It is our understanding that the mail boxes belong to the Marshfield P. O. so replacement will not be carried on the Reserve Schedule.

Signage is very limited, and generally in good condition. This office advises a small annual allowance of $250 to replace signage as necessary.

Overall Structural Integrity

No major structural deficiencies were noted during this offices inspection of Spyglass Landing Condominium.

Site Utilities

Electrical service is supplied to the site via underground cables. The service is transformed on-site, and distributed to the individual Units. No problems

were reported or observed relative to the site utilities. This office suggests an annual allowance of $1,000 to address unforeseen problems with the underground utilities.

RESERVE STUDY

The following is a compilation of data relative to common area elements; their expected remaining useful lives and replacement costs. The remaining useful lives are estimated based on the current condition; experience with similar materials; and the current level of maintenance.

As was noted, the Reserve Schedule typically covers only those items with an expected remaining useful life of 30 years or less. Items with a longer expected remaining useful life (i.e. foundations, etc.) are not covered. Items for which the remaining useful lives are impossible to determine (i.e. underground utilities), a reasonable yearly allowance for unforeseen problems is recommended.

According to information provided to this office, the Reserve Account balance is $439,851 as of 8/30/2016. That amount has been applied to the Reserve Schedule, based on the replacement cost of each item. All cost estimates are given in 2016 dollars. It is suggested that this Reserve Study be reviewed on an annual basis and updated every three years.

1. Asphalt Shingle Roofing

Current Age	11 years
Remaining Useful Life	19 years
Quantity	191,470 sq. ft.
Total Estimated Replacement Cost	$1,148,820
Existing Reserve	$131,143
Annual Amount Required	$53,562

The existing asphalt shingles are medium weight fiberglass-reinforced, random tab shingles. The shingles are expected to provide a full 30-year useful life. The estimated replacement cost is based on removing and properly disposing the existing shingles and installing new heavyweight, random tab shingles.

2. Gutters and Downspouts

Current Age	11 years
Remaining Useful Life	19 years
Quantity	5,880 ln. ft.
Total Estimated Replacement Cost	$52,920
Existing Reserve	$6,041
Annual Amount Required	$2,467

The existing gutters are seamless aluminum, secured with a bar hanger system, and are in excellent condition. In order to assure proper installation of underlayments and flashings, this office suggests replacing the gutters in conjunction with the roofing shingles in approximately 19 more years.

3. Vinyl Siding and Trim

Current Age	11 years
Remaining Useful Life	30 years
Quantity	137,760 sq. ft.
Total Estimated Replacement Cost	$1,033,200
Existing Reserve	$117,944
Annual Amount Required	$30,509

The exterior walls are covered with PVC (vinyl) siding and aluminum-clad pine trim. The siding and trim are in excellent condition, and should provide another 30 years of useful life assuming proper maintenance. The estimated replacement cost is based on removal and replacement with new vinyl siding and solid cellular PVC trim.

4. Utility Room Doors

Current Age	11 years
Remaining Useful Life	9 years
Quantity	28 Units
Total Estimated Replacement Cost	$25,200
Existing Reserve	$2,877
Annual Amount Required	$2,480

The metal entry doors that access the utility rooms are in fair condition, with some displaying trim rot and/or surface rust. The doors will likely require replacement in the next 9 years (20-year total life).

5. Exterior Decks - Open

Current Age	11 years
Remaining Useful Life	14 years
Quantity	8,668 sq. ft.
Total Estimated Replacement Cost	$476,740
Existing Reserve	$54,422
Annual Amount Required	$30,166

Each unit includes a wood framed deck at the rear elevation. Fifty-six of the decks remain open to the weather, while 28 have been enclosed. This office expects the open decks to require replacement in the next 12 – 14 years. The estimated cost reflects removal and replacement with modern equals.

6. Sunrooms – (* Deck Structure Only)

Current Age	11 years
Remaining Useful Life	24 years
Quantity	4,752 sq. ft.
Total Estimated Replacement Cost	$261,360
Existing Reserve	$29,835
Annual Amount Required	$9,647

As noted, 28 of the decks have been enclosed with sunrooms, and are in very good condition. Due to their sheltered nature, we expect the sunrooms to remain serviceable longer than the open decks. The replacement cost reflects the deck structure only, the sunroom components are Unit-owned.

7. Pavement (Roadways/Parking Areas)

Current Age	11 years
Remaining Useful Life	14 years
Quantity	10,055 sq. yd.
Total Estimated Replacement Cost	$271,485
Existing Reserve	$30,991
Annual Amount Required	$17,178

The roadway pavement is in good condition at this time, and we have assumed a total useful life to 25 years. The remaining life assumes that the recommendations for ongoing maintenance are followed. The replacement cost reflects pulverization and re-compaction, with a new 4" total system thickness.

8. Pavement (Driveways)

Current Age	11 years
Remaining Useful Life	14 years
Quantity	4,886 sq. yd.
Total Estimated Replacement Cost	$107,492
Existing Reserve	$12,271
Annual Amount Required	$6,802

The driveway pavement is in good condition at this time, and we have assumed a total useful life to 25 years. The remaining life assumes that the recommendations for ongoing maintenance are followed. The replacement cost reflects removal and replacement of the existing with a new 3" total thickness.

9. Wooden Picket Fencing

Current Age	11 years
Remaining Useful Life	3 years
Quantity	300 ln. ft.
Total Estimated Replacement Cost	$12,000
Existing Reserve	$1,370
Annual Amount Required	$3,543

There is wooden fencing behind the buildings on Clipper Circle, which is in fair condition. The fencing should remain serviceable for approximately 2 - 3 more years. The estimated replacement cost is based on removal and disposal of the existing fencing, and replacement with a new PVC picket fence.

10. Concrete – Unit Walkways

Current Age	11 years
Remaining Useful Life	19 years
Quantity	12,482 sq. ft.
Total Estimated Replacement Cost	$187,230
Existing Reserve	$21,373
Annual Amount Required	$8,729

There are poured concrete walks accessing the unit entry doors. The walks are currently in good condition, and with remedial maintenance, should remain serviceable for approximately 19 more years. The estimated replacement cost is based on complete removal and replacement of the existing walks.

11. Concrete – Sidewalks

Current Age	11 years
Remaining Useful Life	19 years
Quantity	18,445 sq. ft.
Total Estimated Replacement Cost	$276,675
Existing Reserve	$31,584
Annual Amount Required	$12,900

The sidewalks are generally in good condition, although several sections have been replaced over the years. Assuming this process continues, the sidewalks should remain serviceable for up to 19 more years. If possible, we have suggested trying to maintain the asphalt as long as possible so that the roads and sidewalks can be replaced as a single project.

12. Exterior Lighting

Current Age	11 years
Remaining Useful Life	Varies
Quantity	Lump Sum
Total Estimated Replacement Cost	Allowance
Existing Reserves	N/A
Annual Amount Required	$500

The exterior lighting at the property is in good order. Since light fixtures rarely fail at predictable rates, we would advise carrying a small annual allowance of $500 to address problems with the exterior lighting fixtures as the need arises.

13. Gazebo

Current Age	11 years
Remaining Useful Life	Varies
Quantity	Lump Sum
Total Estimated Replacement Cost	Allowance
Existing Reserves	N/A
Annual Amount Required	$250

The central gazebo is in good condition, and with proper maintenance, can be maintained for many more years. With that in mind, we are advising a small annual allowance of $250 to maintain the gazebo.

14. Signage

Current Age	11 years
Remaining Useful Life	Varies
Quantity	Lump Sum
Total Estimated Replacement Cost	Allowance
Existing Reserves	N/A
Annual Amount Required	$250

The signage is very limited and is in good condition. We are advising a small annual allowance of $250 to address issues with site signage as the need arises.

15. Underground Utilities

Current Age	11 years
Remaining Useful Life	Varies
Quantity	Lump Sum
Total Estimated Replacement Cost	Allowance
Existing Reserves	N/A
Annual Amount Required	$1,000

The existing underground utilities (water supply, electric cables, etc.) appear to be functioning well at this time. It is impossible to accurately determine the life expectancy of these systems. A yearly allowance of $1,000 is recommended for these unforeseen problems.

RESERVE SCHEDULE

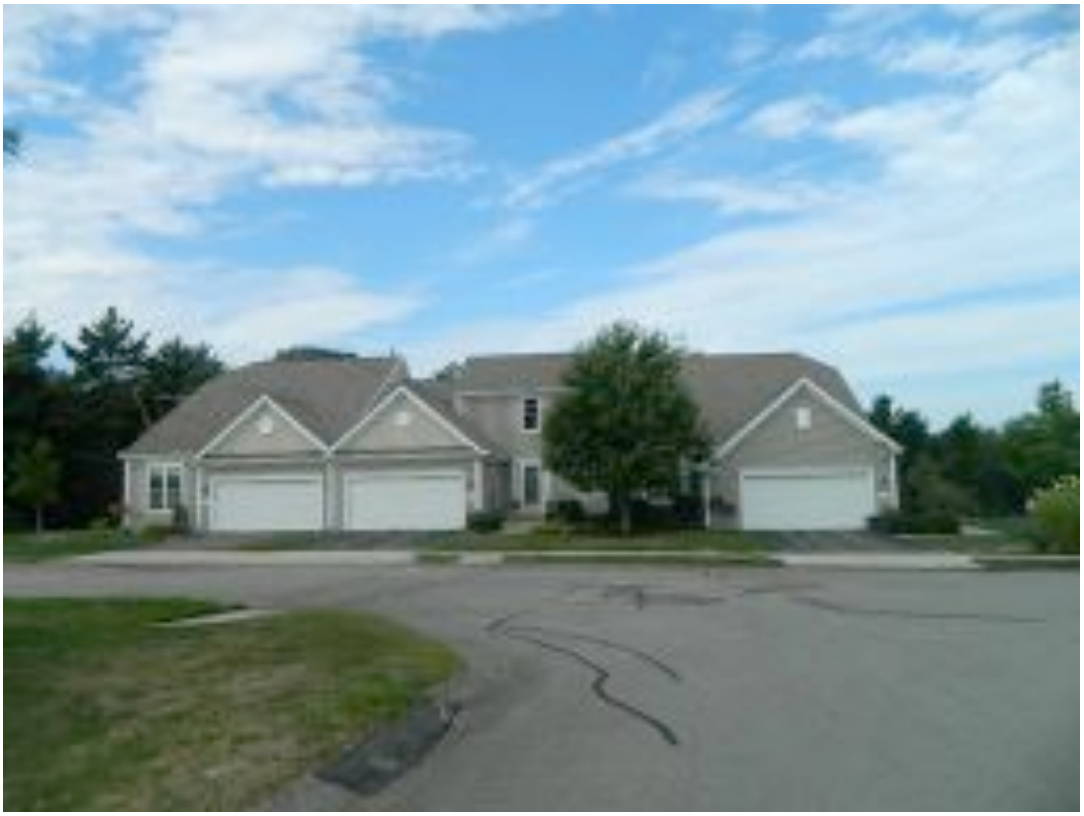
SPYGLASS LANDING CONDOMINIUM ASSOCIATION - MARSHFIELD, MASSACHUSETTS									
RESERVE SCHEDULE - OCTOBER 2016									
		AVERAGE	REMAINING						
		AGE	LIFE			UNIT	REPLACEMENT	EXISTING	ANNUAL
ITEM#	ITEM	(years)	(years)	QUANTITY	UNITS	COST	COST	RESERVES	CONTRIBUTION
1	Asphalt Shingle Roofing	11	19	191,470	SQ. FT.	$6.00	$1,148,820	$131,143	$53,562
2	Gutters and Downspouts	11	19	5,880	LN. FT.	$9.00	$52,920	$6,041	$2,467
3	Vinyl Siding and Trim	11	30	137,760	SQ. FT.	$7.50	$1,033,200	$117,944	$30,509
4	Utility Room Doors	11	9	28	UNITS	$900.00	$25,200	$2,877	$2,480
5	Exterior Decks - Open	11	14	8,668	SQ. FT.	$55.00	$476,740	$54,422	$30,166
6	Sunrooms	11	24	4,752	SQ. FT.	$55.00	$261,360	$29,835	$9,647
7	Pavement (Roadways/Parking Areas)	11	14	10,055	SQ. YD.	$27.00	$271,485	$30,991	$17,178
8	Pavement (Driveways)	11	14	4,886	SQ. YD.	$22.00	$107,492	$12,271	$6,802
9	Wooden Picket Fencing	11	3	300	LN. FT.	$40.00	$12,000	$1,370	$3,543
10	Concrete - Unit Walkways	11	19	12,482	SQ. FT.	$15.00	$187,230	$21,373	$8,729
11	Concrete - Sidewalks	11	19	18,445	SQ. FT.	$15.00	$276,675	$31,584	$12,900
12	Exterior Lighting	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$500
13	Gazebo	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$250
14	Signage	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$250
15	Underground Utilities	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$1,000
	Total Replacement Cost:						$3,853,122		
	Reserve Account Balance (As of 8/30/16):							$439,851	
	Total annual contribution until first major expenditure:								$179,982
	Basic Monthly Reserve Contribution per Unit								$179

RESERVE SCHEDULE w/ 2% INFLATION

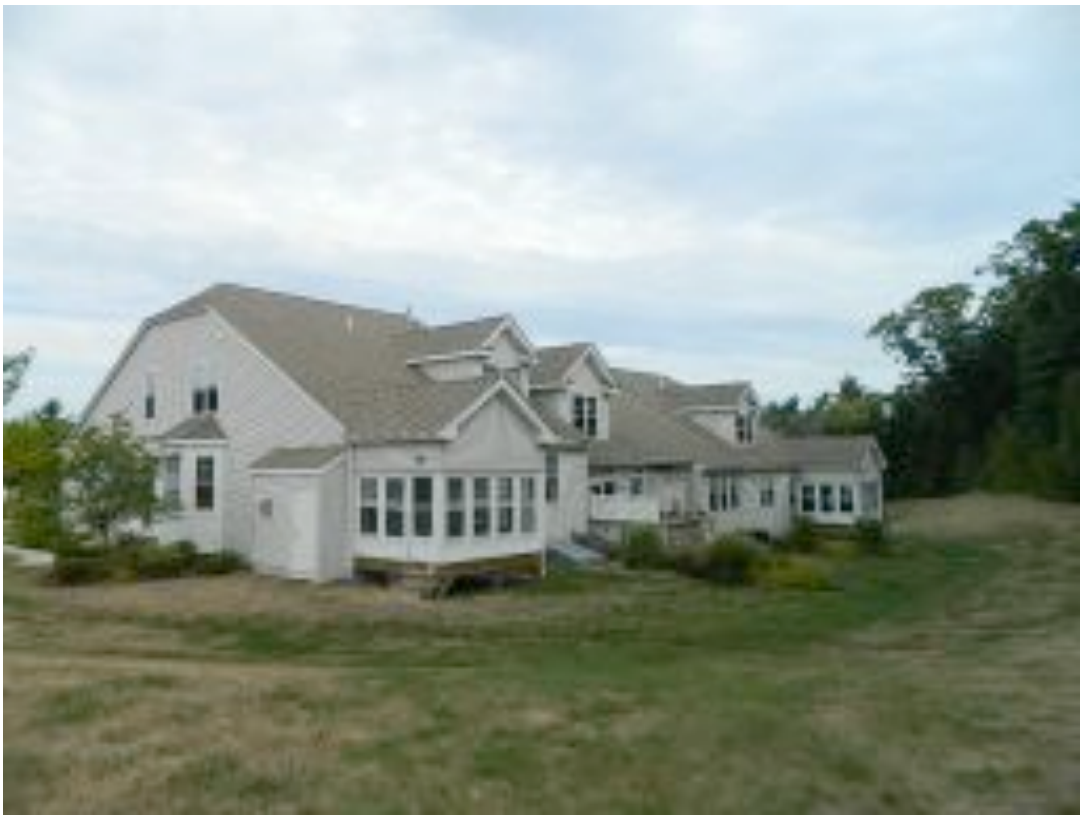
SPYGLASS LANDING CONDOMINIUM ASSOCIATION - MARSHFIELD, MASSACHUSETTS											
RESERVE SCHEDULE - OCTOBER 2016											
		AVERAGE	REMAINING								ANNUAL
		AGE	LIFE			UNIT	REPLACEMENT	EXISTING	ANNUAL	PROJECTED	CONTRIBUTION
ITEM#	ITEM	(years)	(years)	QUANTITY	UNITS	COST	COST	RESERVES	CONTRIBUTION	COST	W/ INFLATION
1	Asphalt Shingle Roofing	11	19	191,470	SQ. FT.	$6.00	$1,148,820	$131,143	$53,562	$1,673,614	$85,266
2	Gutters and Downspouts	11	19	5,880	LN. FT.	$9.00	$52,920	$6,041	$2,467	$77,094	$3,928
3	Vinyl Siding and Trim	11	30	137,760	SQ. FT.	$7.50	$1,033,200	$117,944	$30,509	$1,871,499	$61,366
4	Utility Room Doors	11	9	28	UNITS	$900.00	$25,200	$2,877	$2,480	$30,116	$3,071
5	Exterior Decks - Open	11	14	8,668	SQ. FT.	$55.00	$476,740	$54,422	$30,166	$629,048	$42,777
6	Sunrooms	11	24	4,752	SQ. FT.	$55.00	$261,360	$29,835	$9,647	$420,381	$17,114
7	Pavement (Roadways/Parking Areas)	11	14	10,055	SQ. YD.	$27.00	$271,485	$30,991	$17,178	$358,219	$24,360
8	Pavement (Driveways)	11	14	4,886	SQ. YD.	$22.00	$107,492	$12,271	$6,802	$141,833	$9,645
9	Wooden Picket Fencing	11	3	300	LN. FT.	$40.00	$12,000	$1,370	$3,543	$12,734	$3,064
10	Concrete - Unit Walkways	11	19	12,482	SQ. FT.	$15.00	$187,230	$21,373	$8,729	$272,759	$13,896
11	Concrete - Sidewalks	11	19	18,445	SQ. FT.	$15.00	$276,675	$31,584	$12,900	$403,063	$20,535
12	Exterior Lighting	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$500	$500	$500
13	Gazebo	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$250	$250	$250
14	Signage	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$250	$250	$250
15	Underground Utilities	11	Varies	Lump Sum	N/A	Allowance	Allowance	N/A	$1,000	$1,000	$1,000
	Total Replacement Cost:						$3,853,122				
	Reserve Account Balance (As of 8/30/16):							$439,851			
	Total annual contribution until first major expenditure:								$179,982		
	Basic Monthly Reserve Contribution per Unit								$179		
	Total Replacement Cost assuming 2% inflation X the remaining life of each item:					2.00%				$5,214,539	
	Total annual contribution until first major expenditure:										$287,022
	Basic Monthly Reserve Contribution per Unit										$285

PHOTOGRAPHS

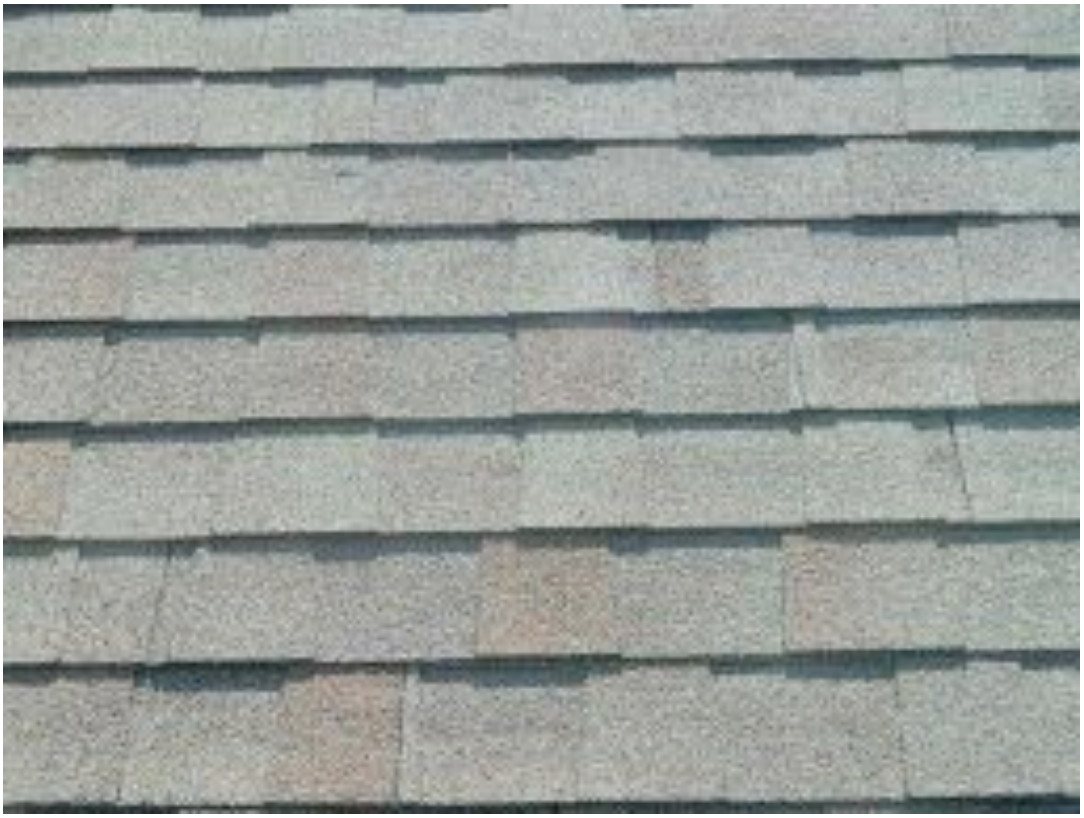
Spyglass Landing Condominium RS – 2016



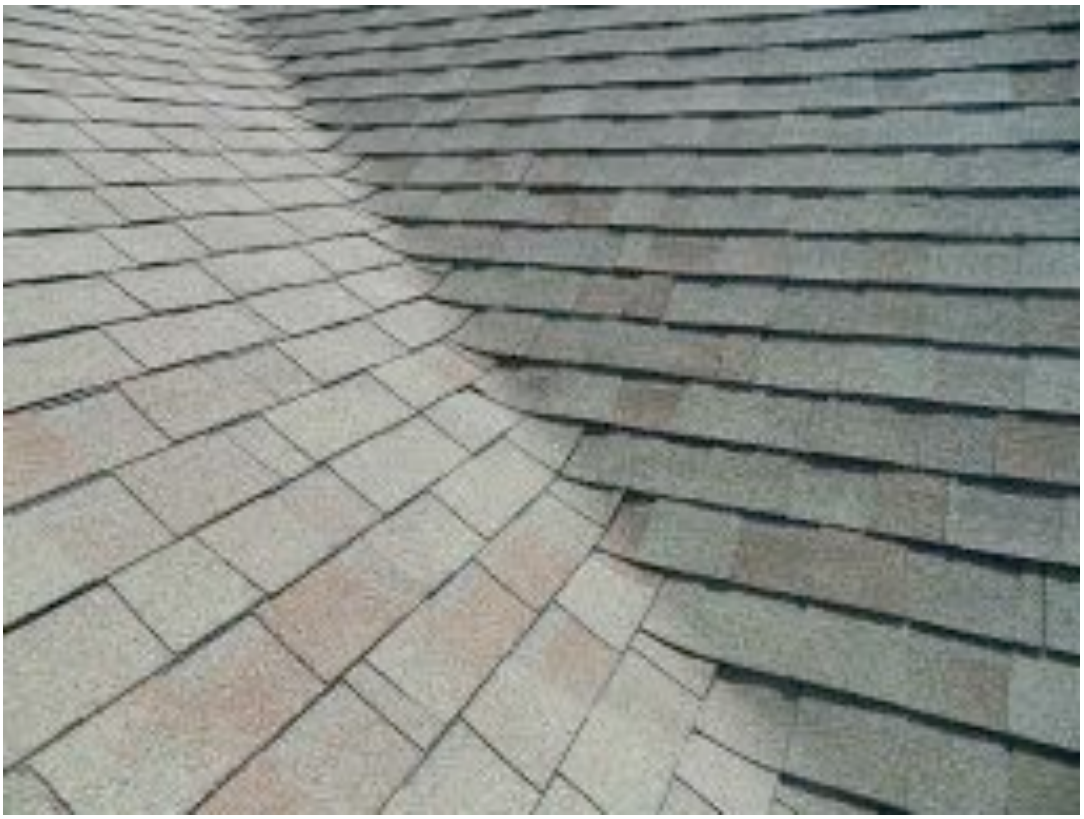
FRONT OVERVIEW OF A TYPICAL BUILDING AT SPYGLASS LANDING



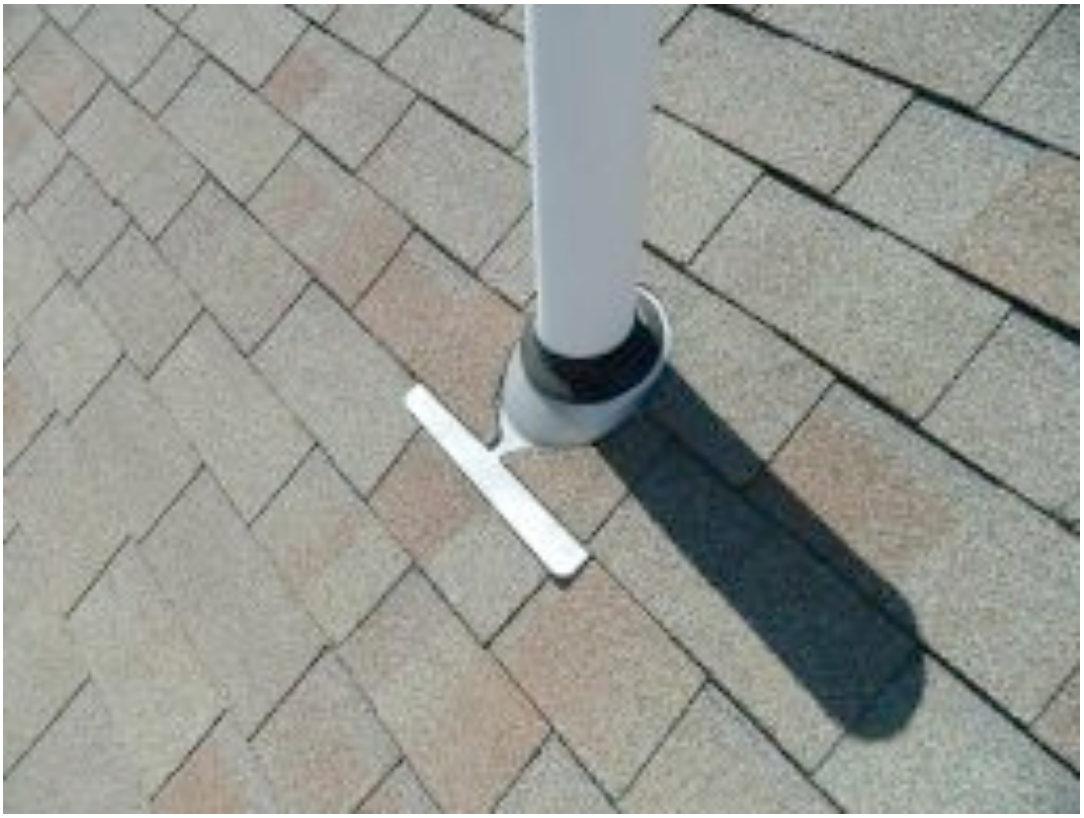
REAR OVERVIEW OF A TYPICAL BUILDING AT SPYGLASS LANDING



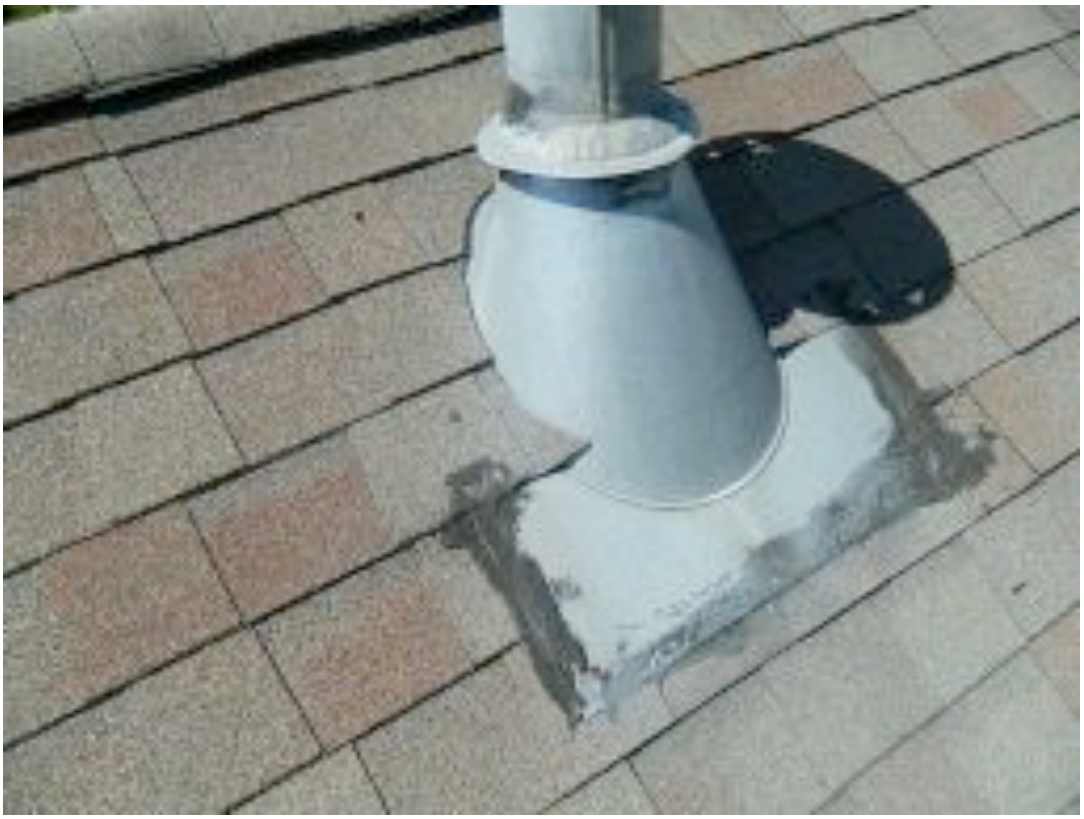
FIBERGLASS-REINFORCED RANDOM TAB SHINGLES



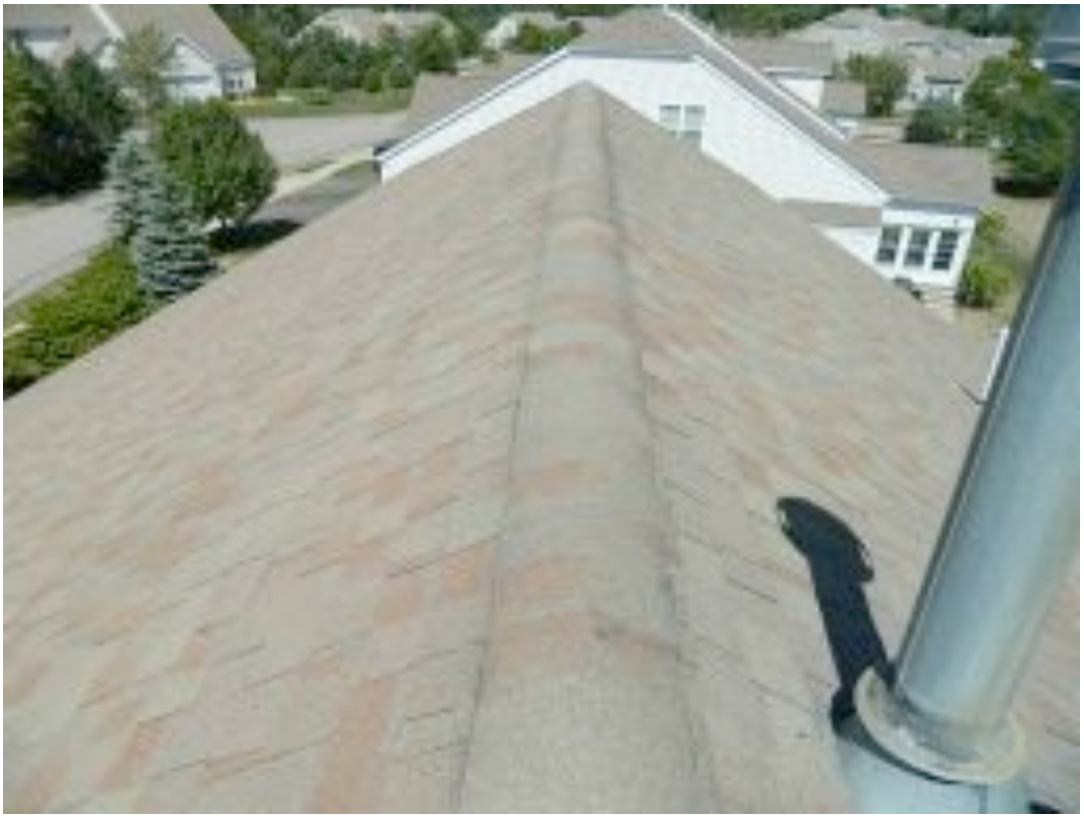
TYPICAL WOVEN VALLEY



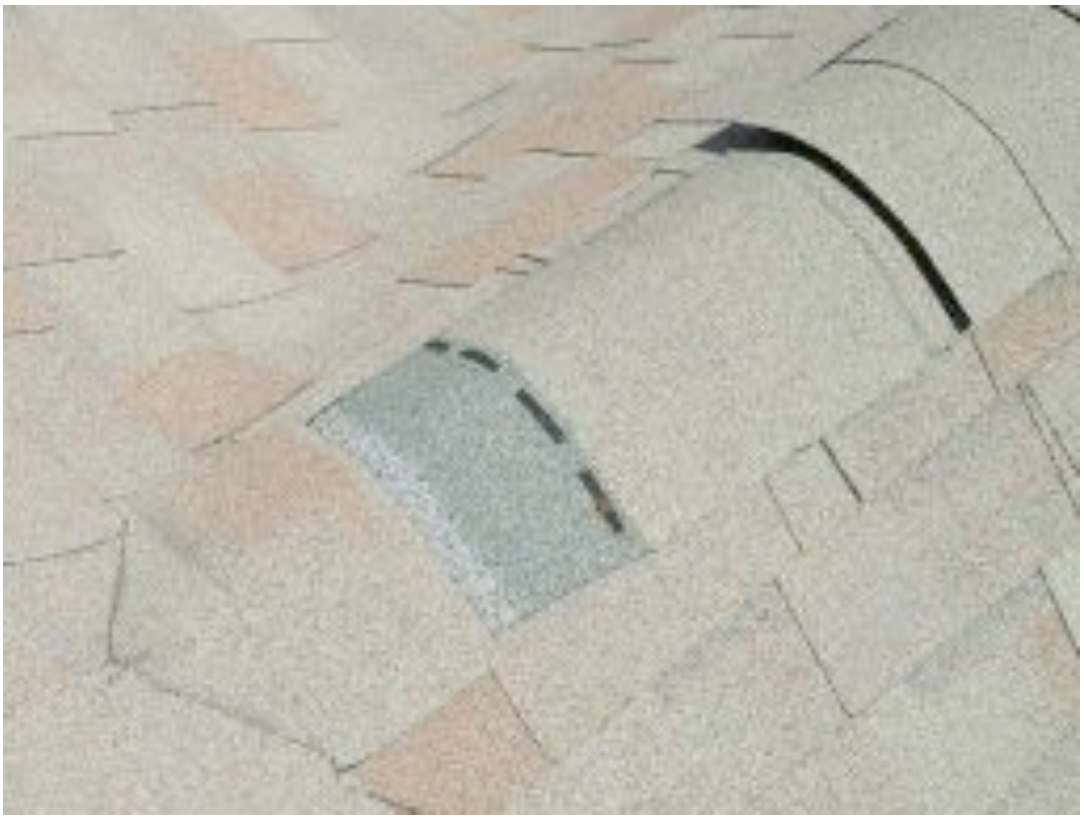
TYPICAL NEOPRENE/ALUMINUM PIPE FLASHING



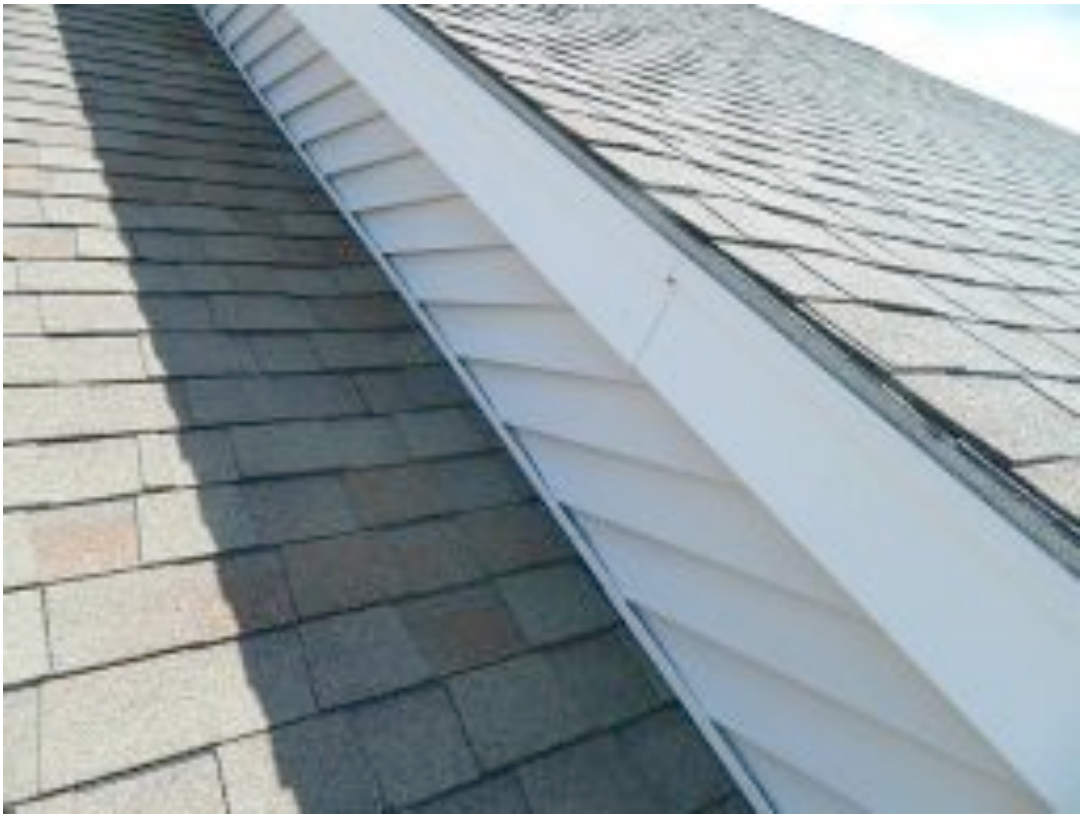
TYPICAL TYPE B GAS VENT STACK FLASHING



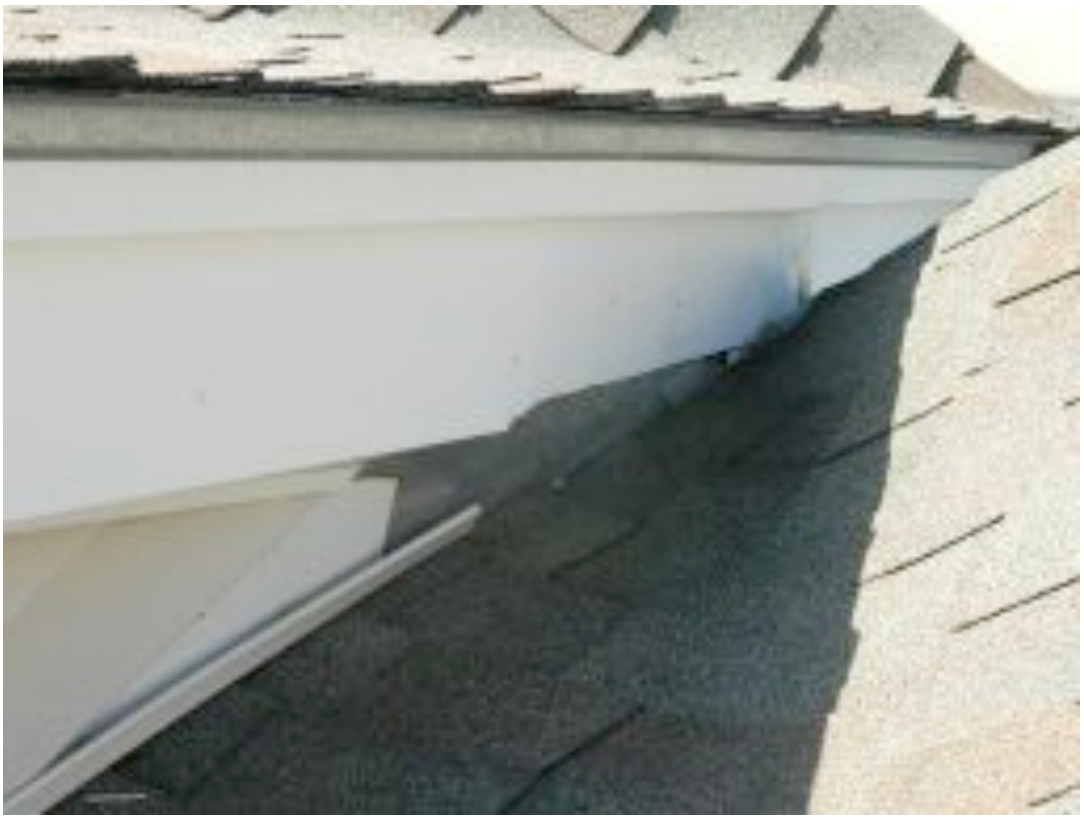
TYPICAL SHINGLED-OVER RIDGE VENT



A FEW MISSING RIDGE CAP SHINGLES WERE NOTED (NOT WIDESPREAD)

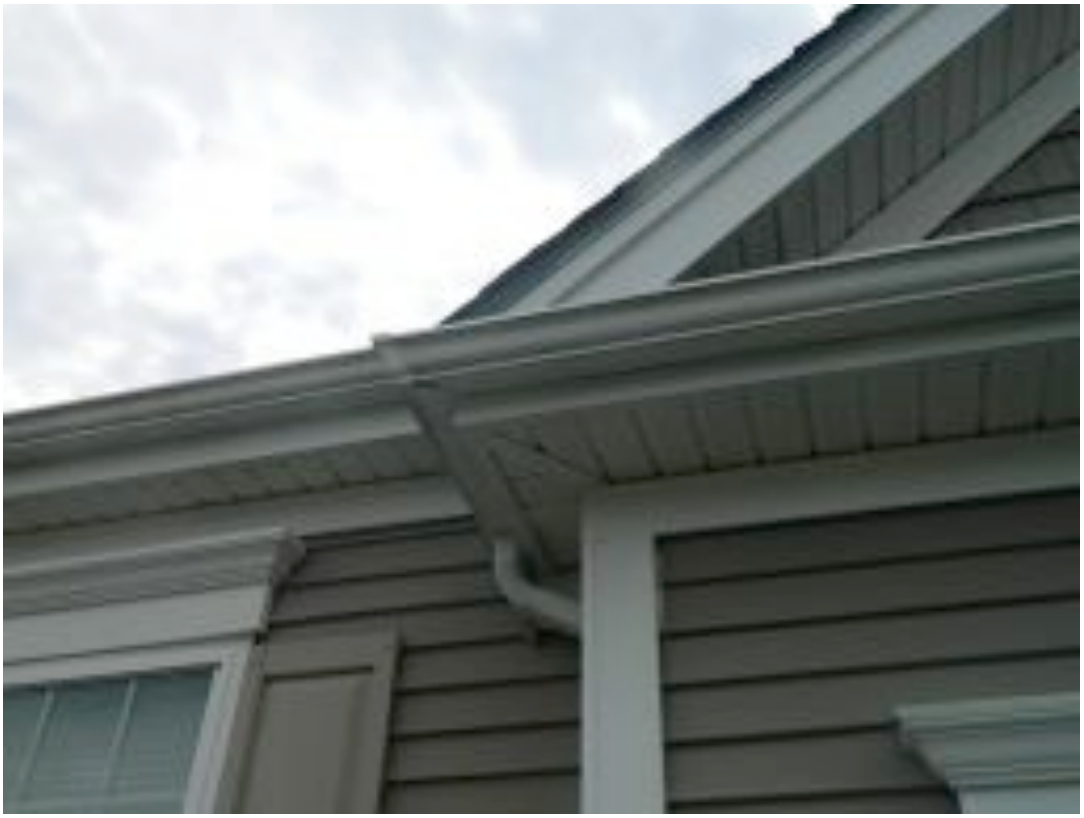


TYPICAL ABOVE-ROOF VINYL SIDING AND CLAD ALUMINUM TRIM

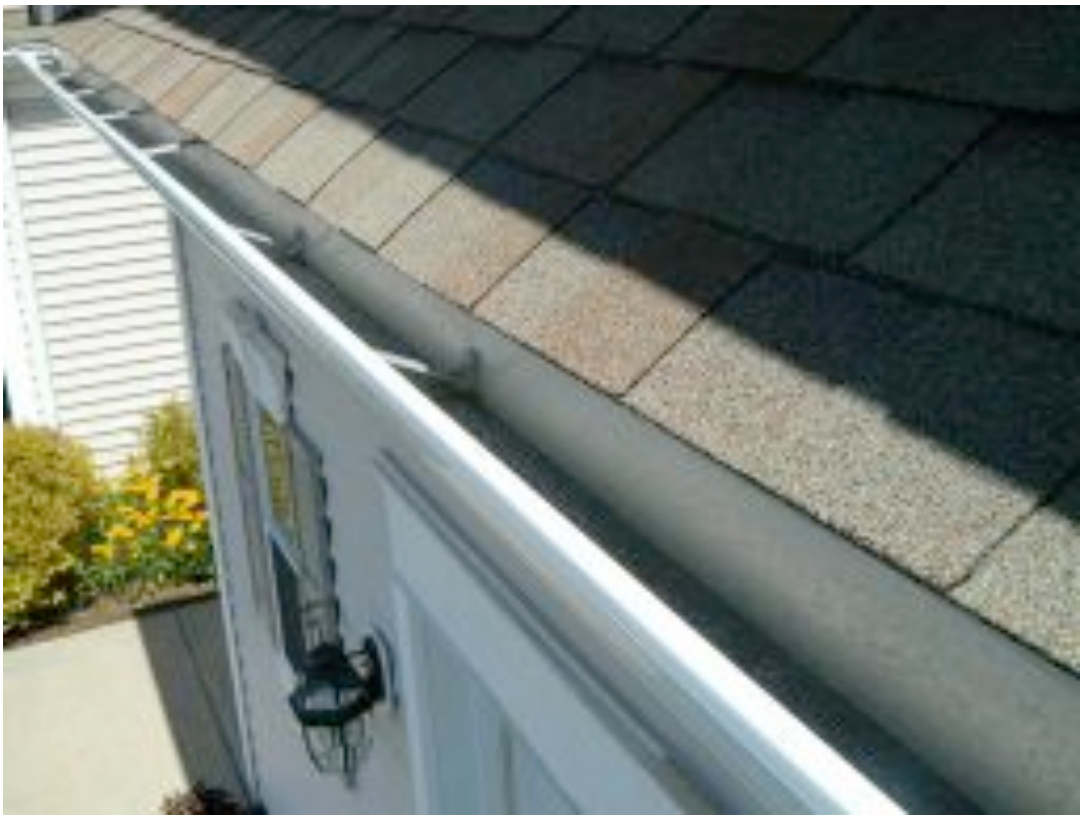


QUESTIONABLE FLASHING DETAILS WERE FOUND WHERE SOME UNITS MERGE

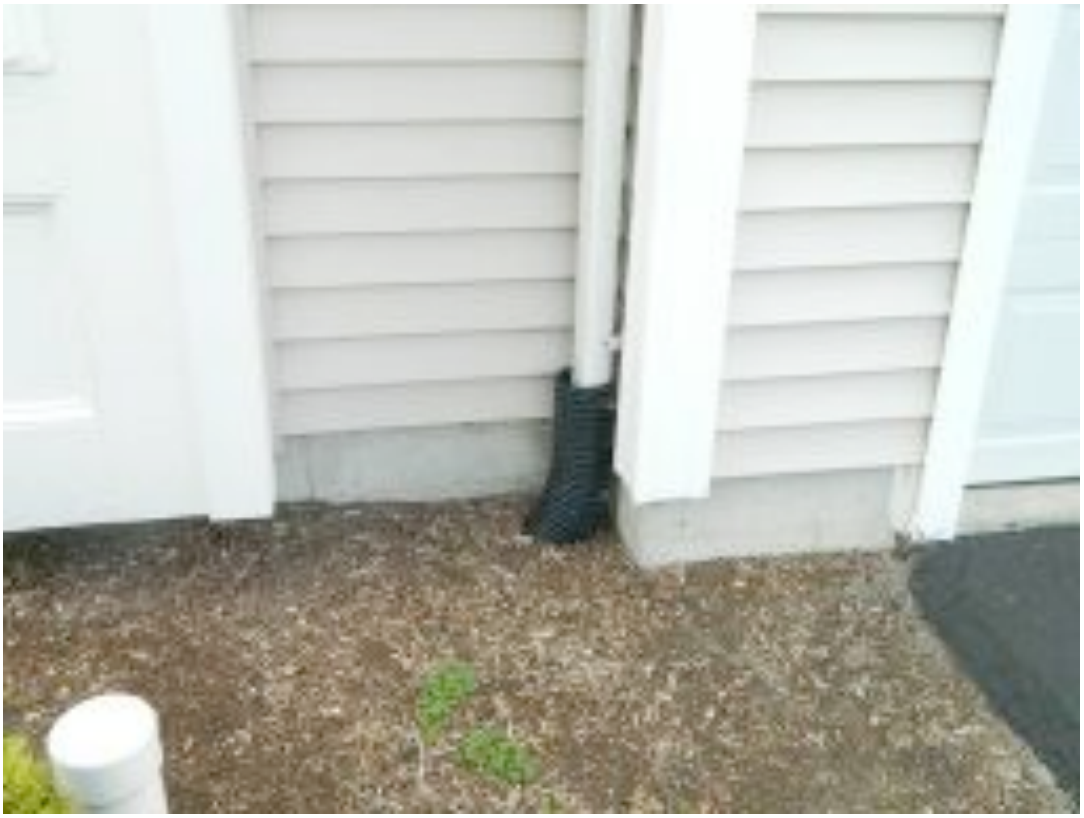
Spyglass Landing Condominium RS – 2016



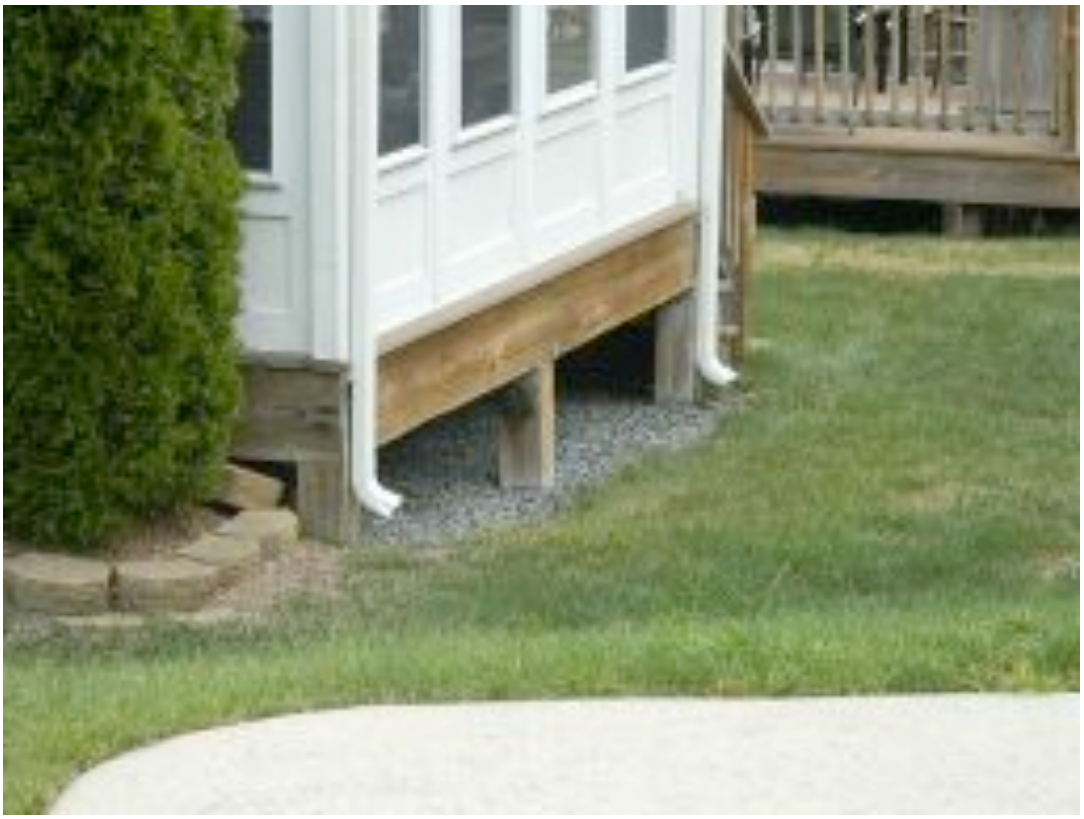
TYPICAL CLAD FASCIA, PERFORATED SOFFIT PANELS AND SEAMLESS ALUMINUM GUTTER



THE GUTTERS ARE ATTACHED WITH A BAR-HANGER SYSTEM (NOTE DETACHED HANGERS)

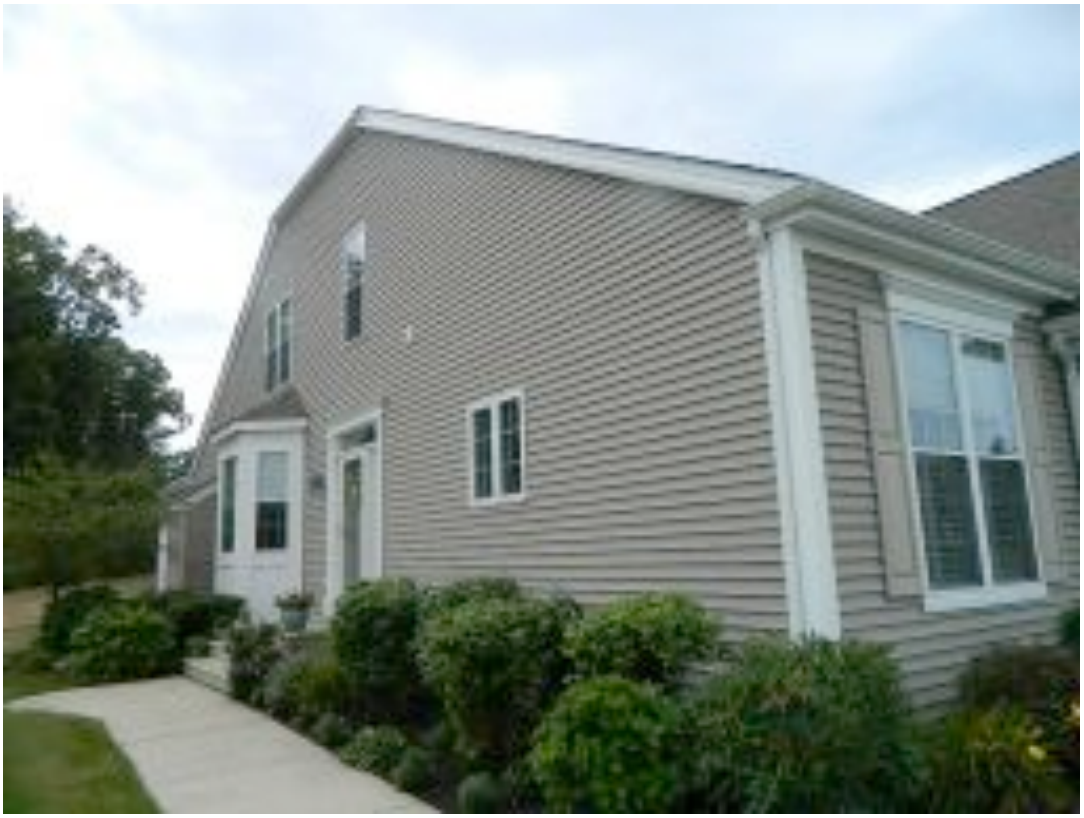


THE FRONT GUTTERS ARE PIPED TO THE SUB-GRADE SYSTEM

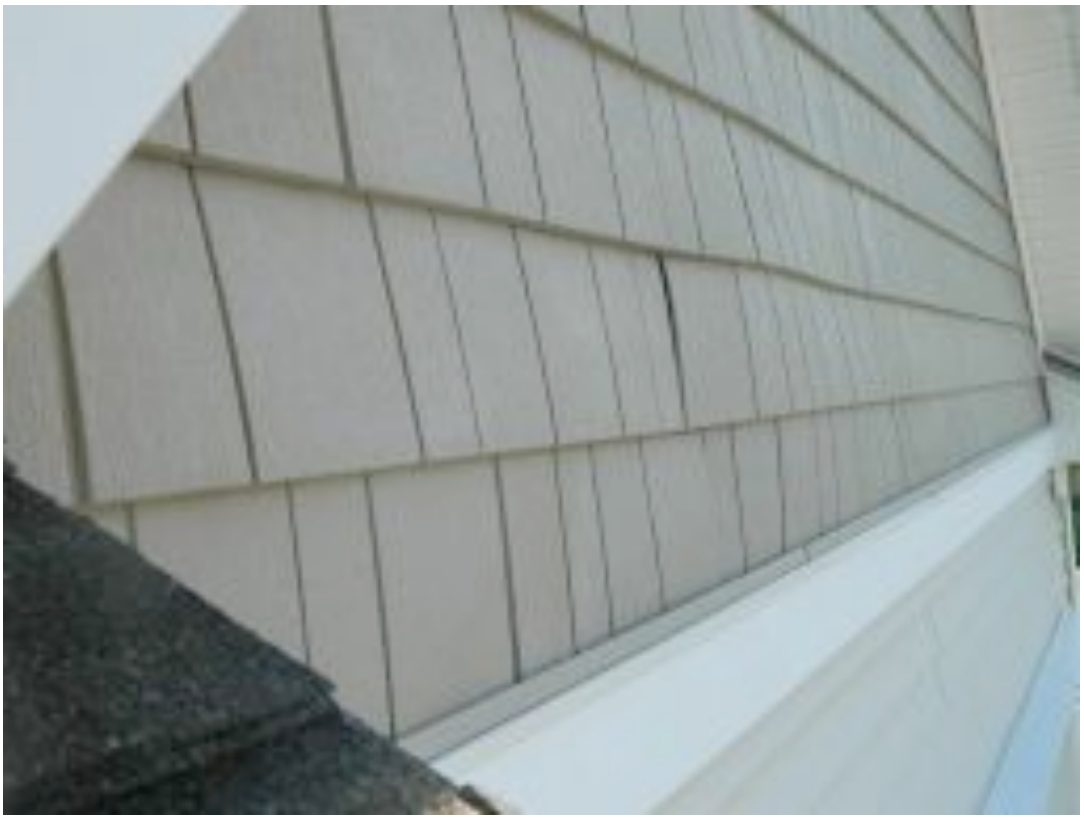


THE REAR GUTTERS SPILL TO GRADE

Spyglass Landing Condominium RS – 2016

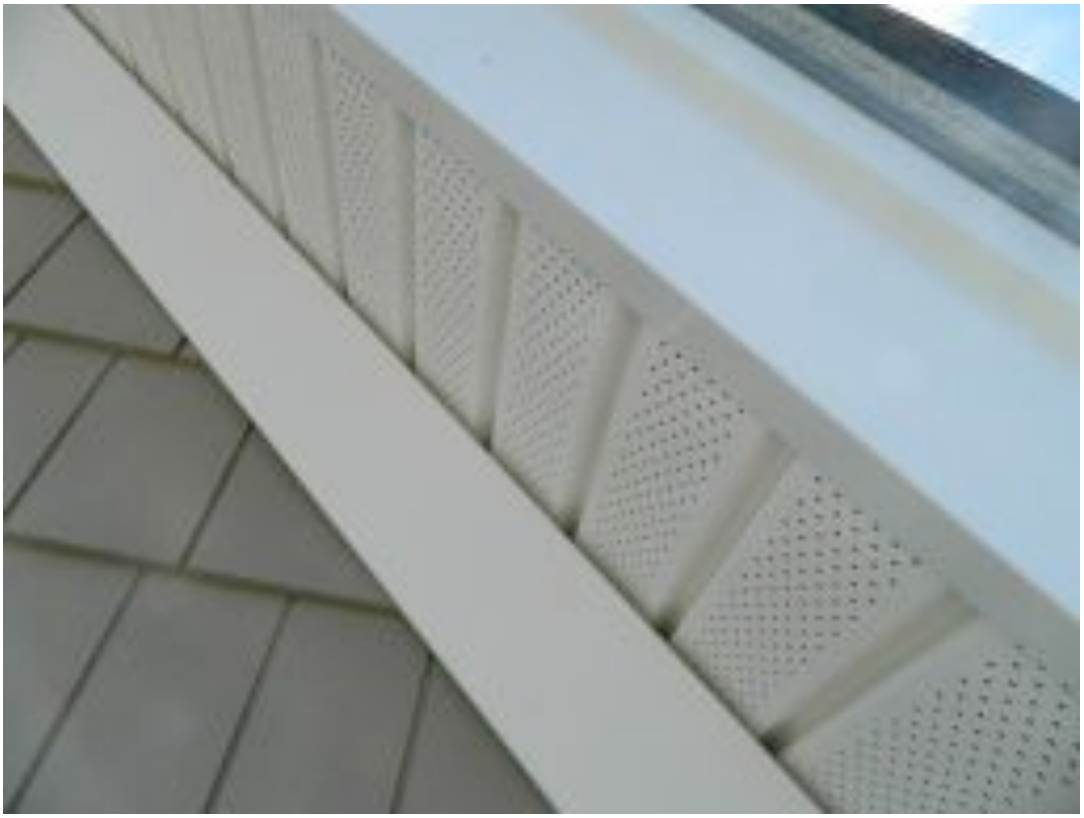


THE EXTERIOR WALLS ARE COVERED WITH VERY DURABLE MATERIALS

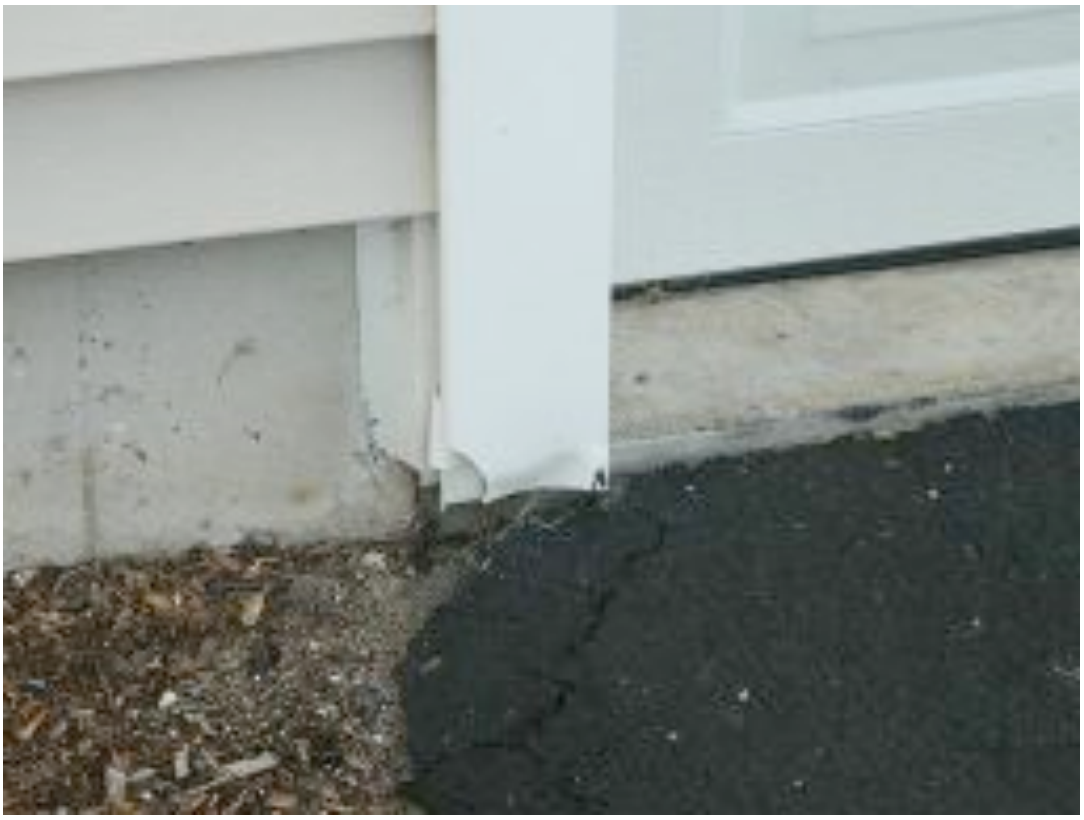


THE SHINGLE SIDING IS A POLYPROPYLENE PRODUCT (NOTE RIPPLING PANELS)

Spyglass Landing Condominium RS – 2016

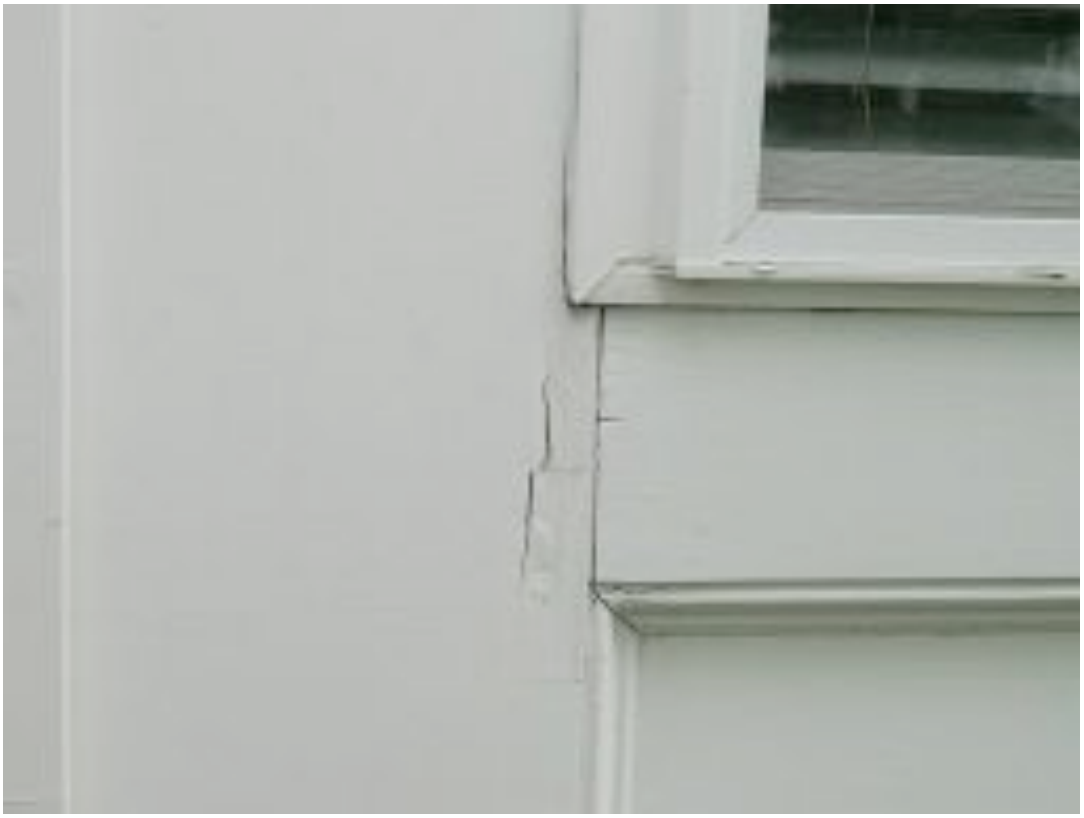


THE RAKES, SOFFITS AND CROWN TRIM ARE ALL MAINTENANCE-FREE

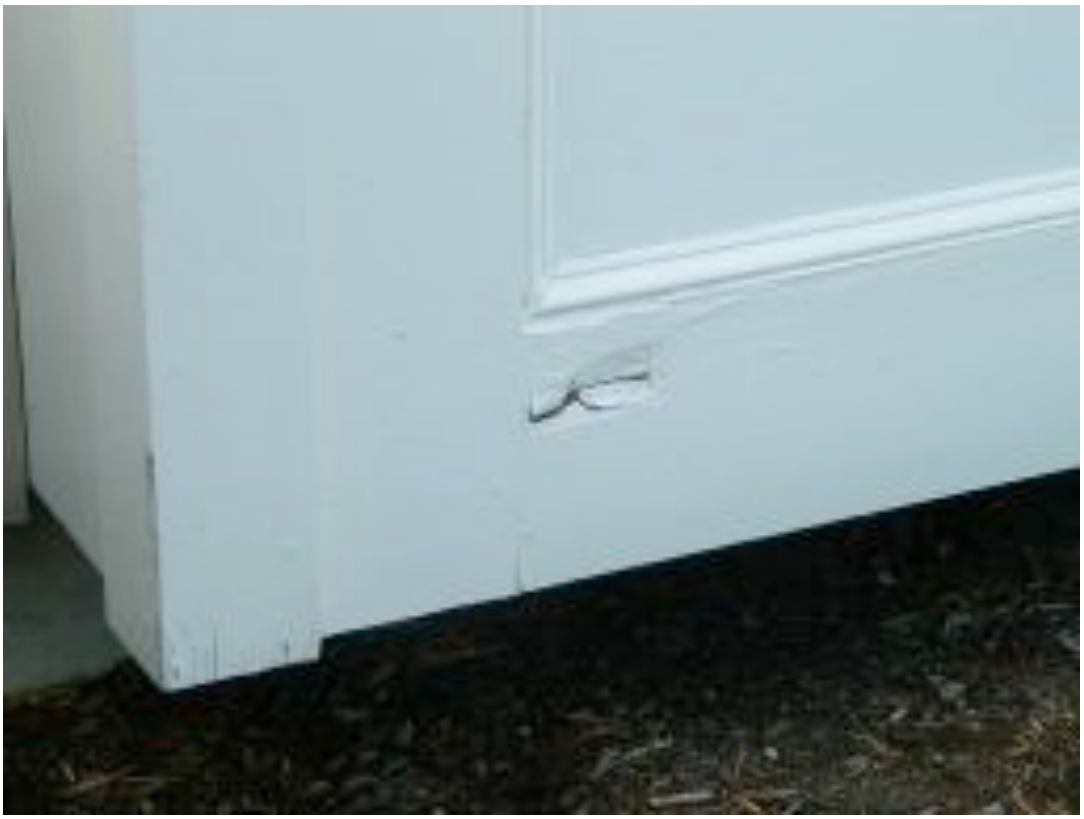


SOME DAMAGED SIDING/TRIM WAS FOUND AT THE BASE OF WALLS (NOT WIDESPREAD)

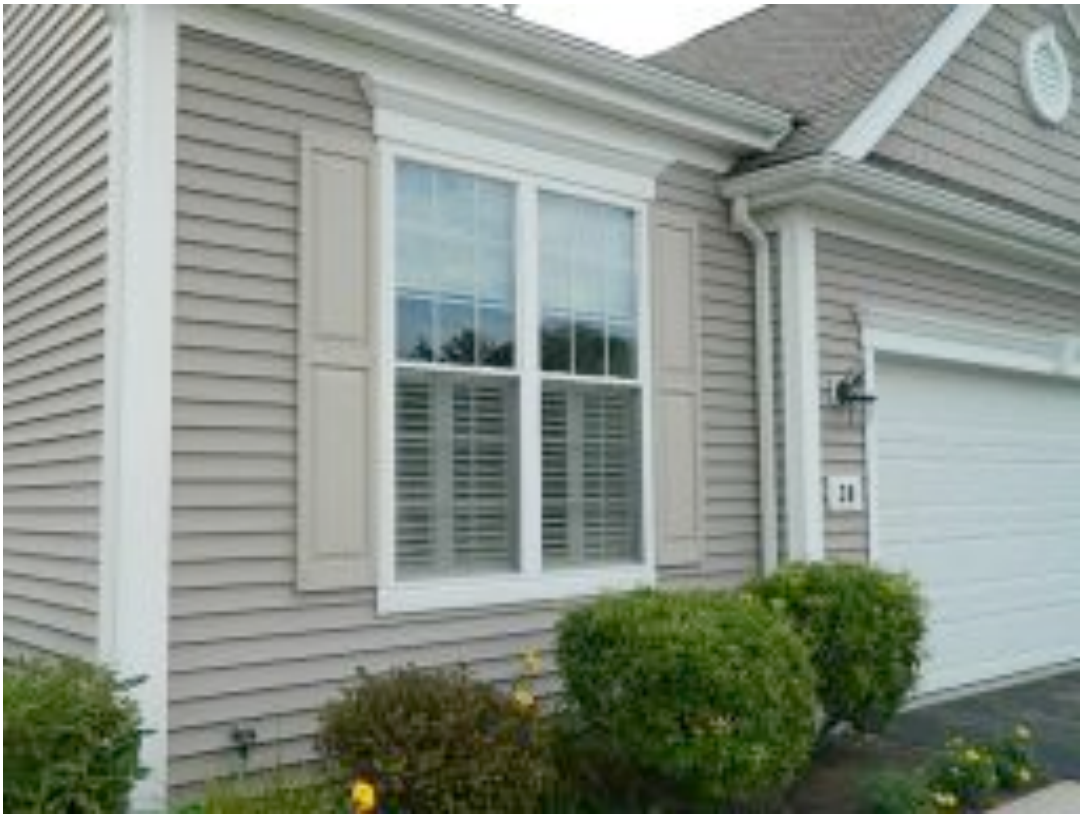
Spyglass Landing Condominium RS – 2016



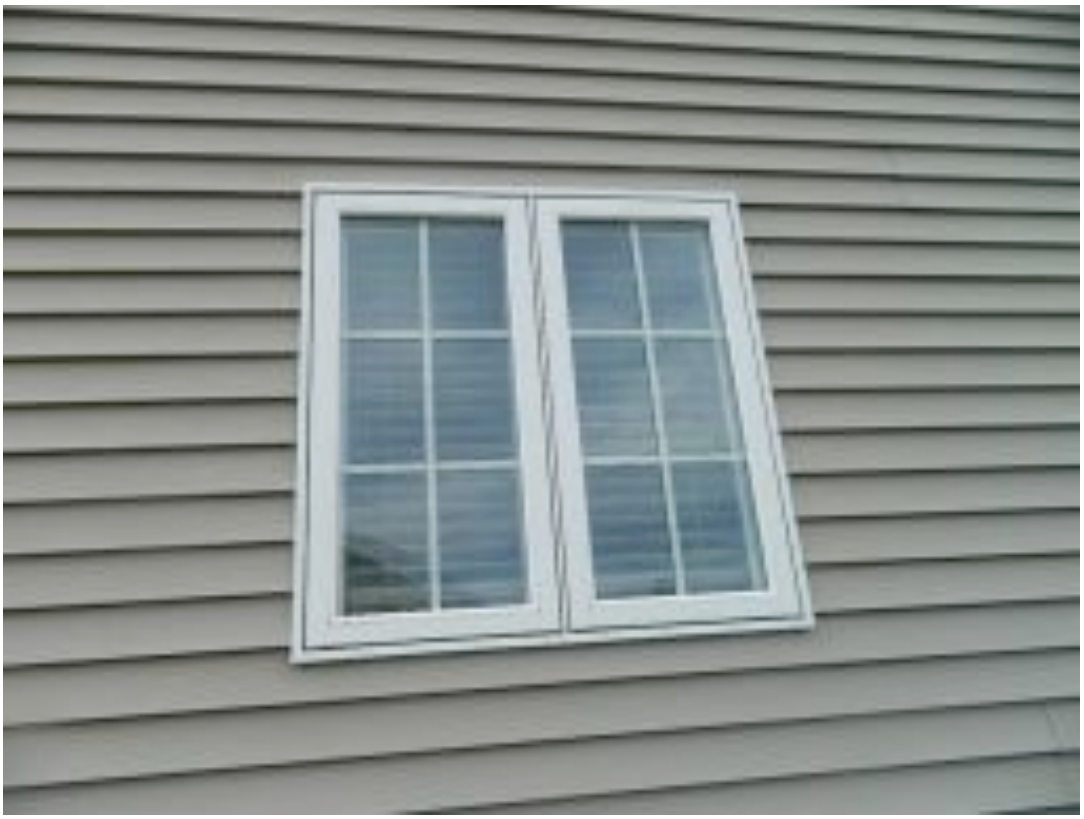
THE PANELS AROUND SOME WINDOWS ARE BEGINNING TO FAIL



THE WINDOW “BUMP OUT” TRIM ROT IS LIKELY DUE TO INCOMPLETE INITIAL COATING

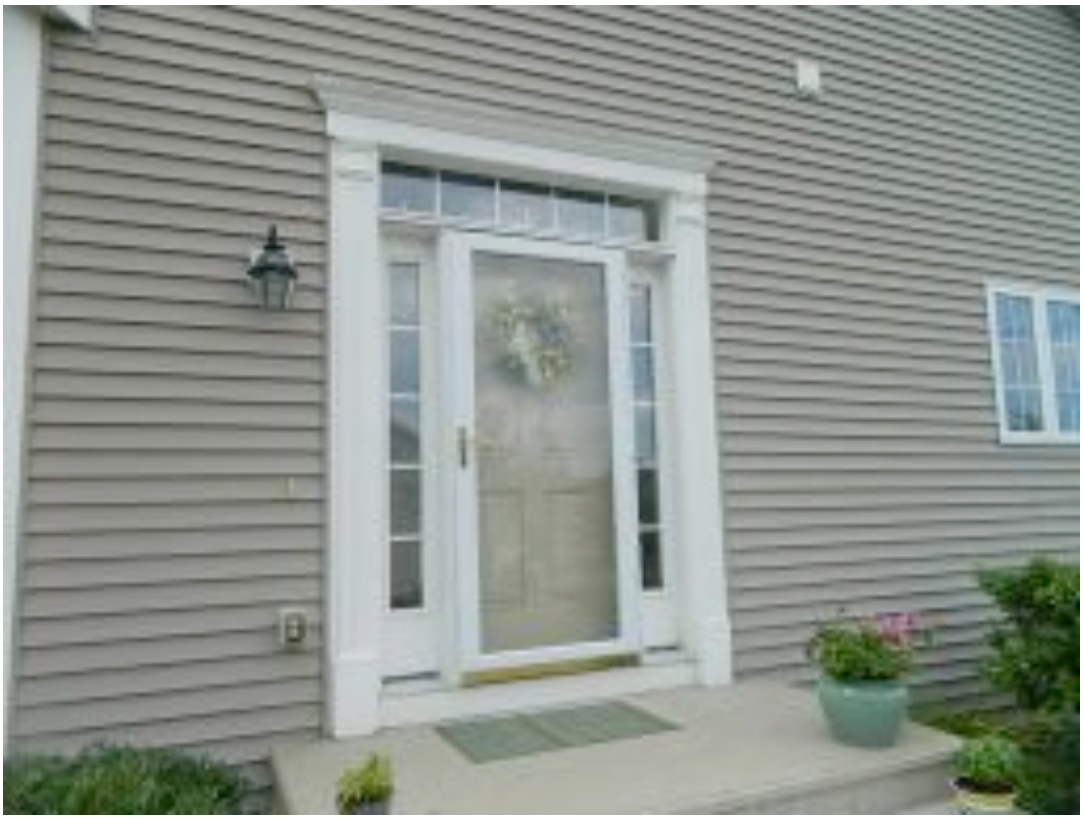


TYPICAL DOUBLE-HUNG WINDOWS



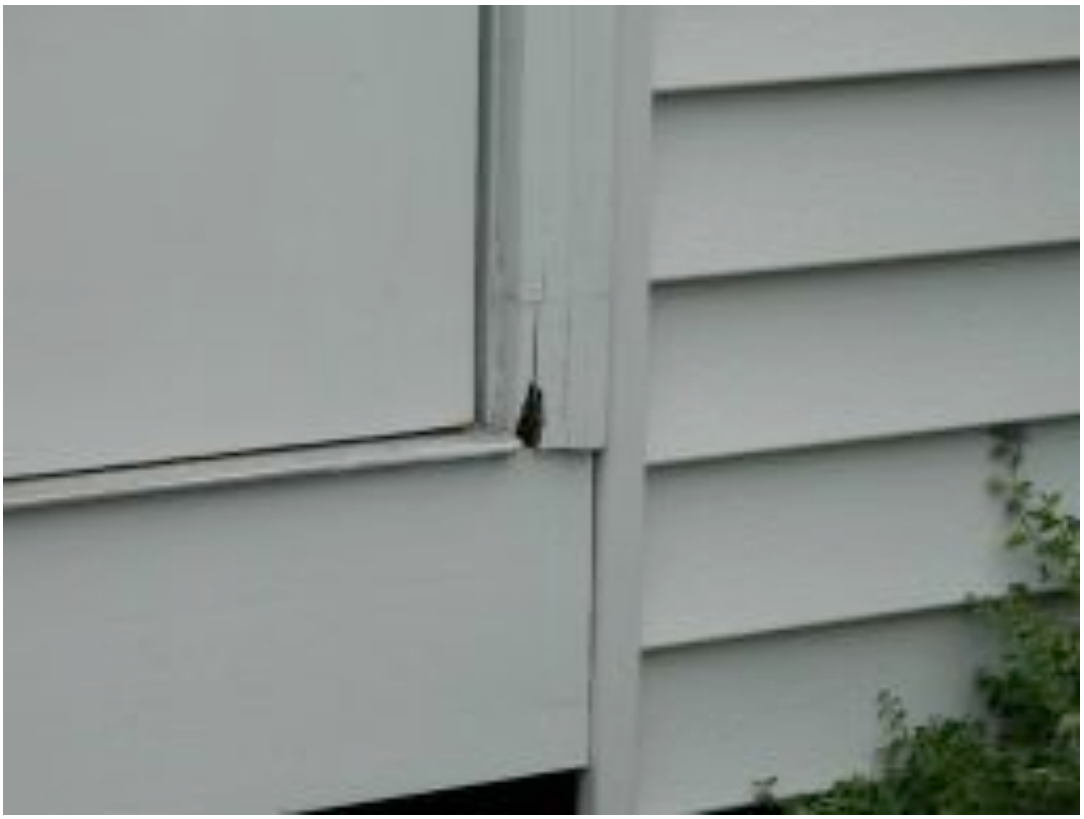
TYPICAL CASEMENT WINDOW

TYPICAL ABOVE-ROOF WINDOW DORMER

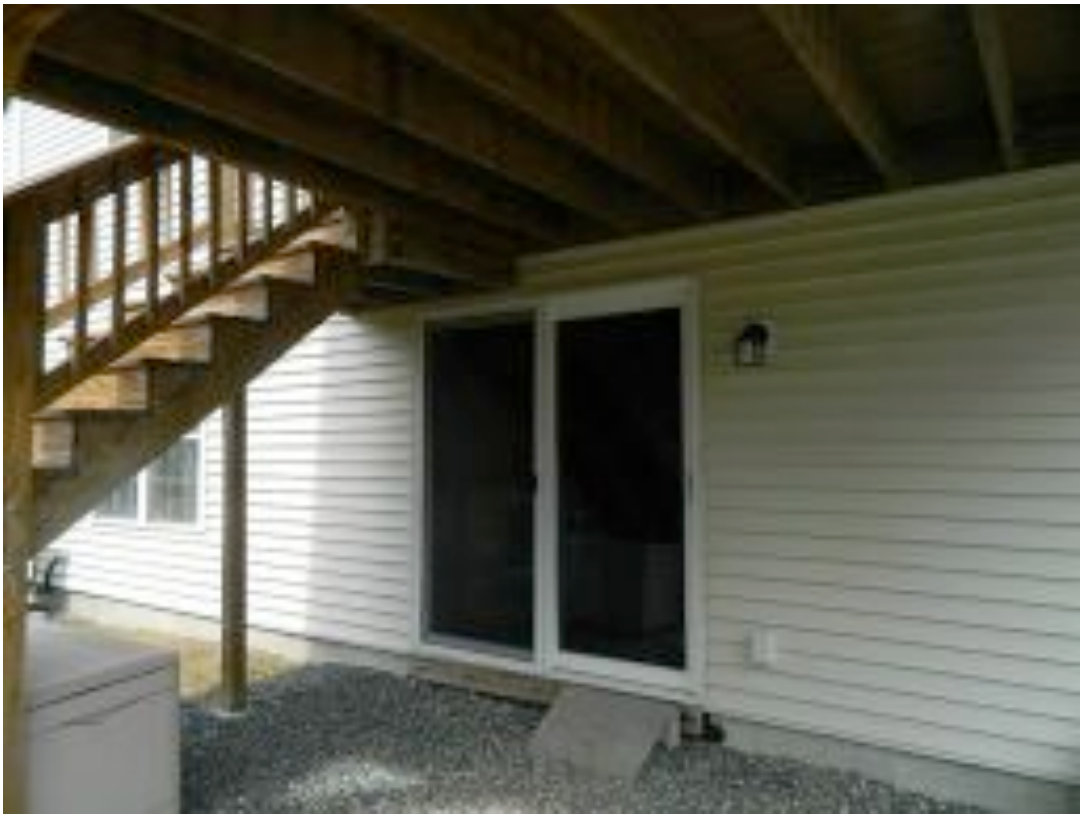


TYPICAL ENTRY AND STORM DOOR

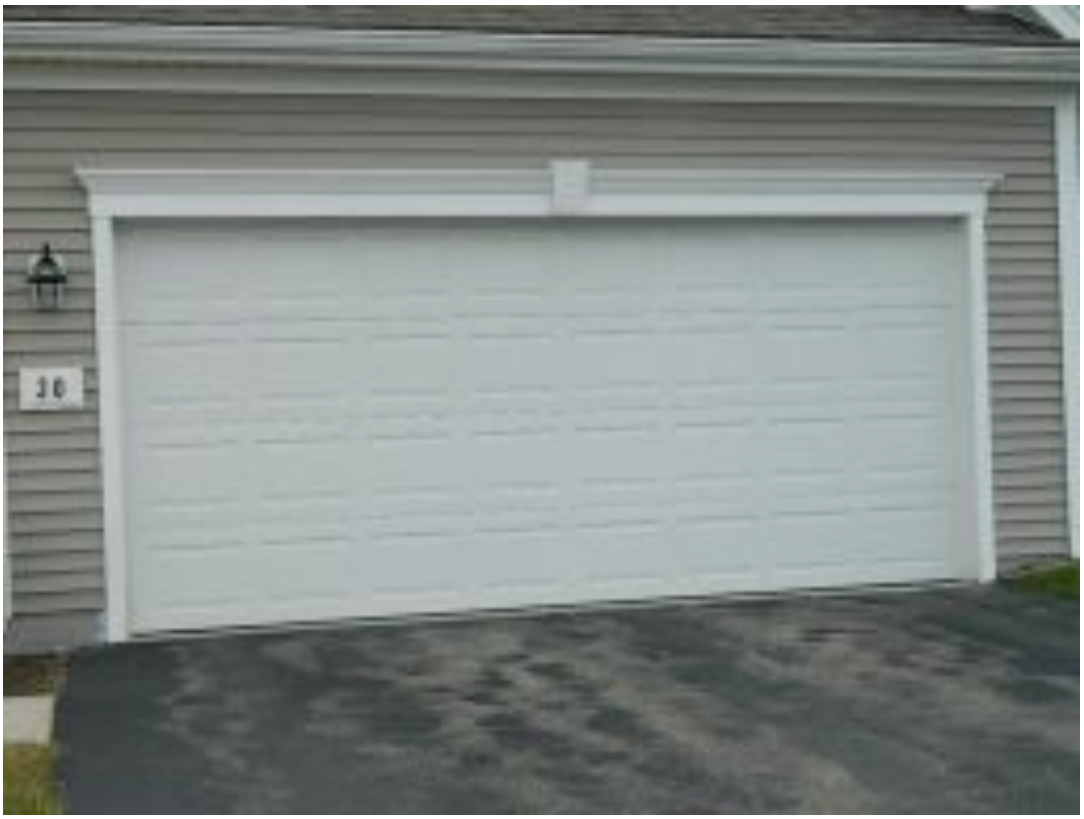
SOME SIDE UTILITY DOORS ARE RUSTING, AND SUFFERING FROM TRIM ROT



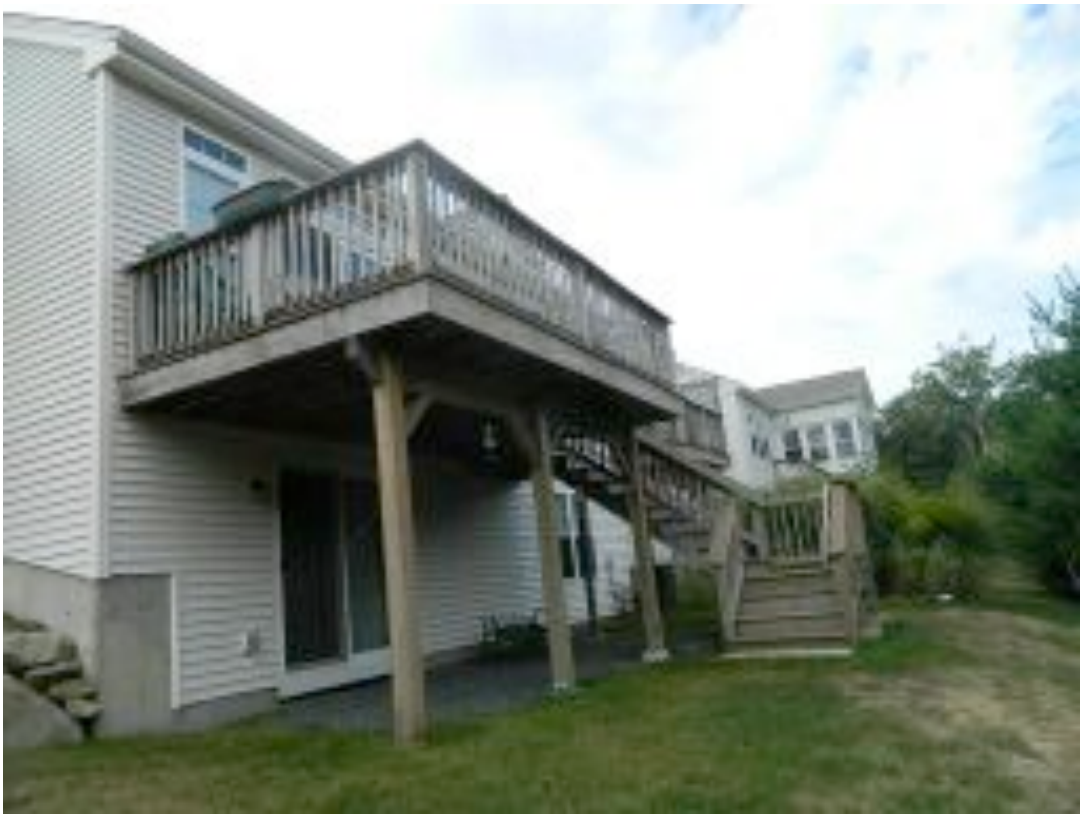
FURTHER EXAMPLE OF TRIM ROT ON A UTILITY ROOM DOOR



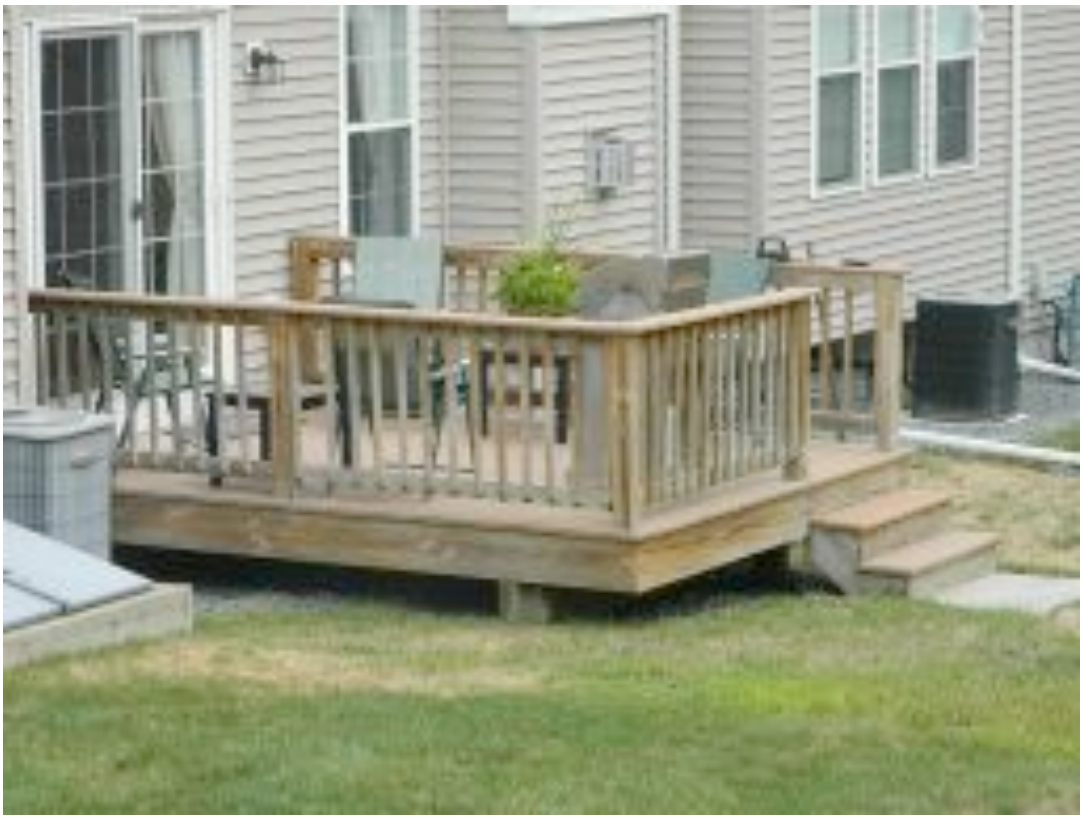
TYPICAL SLIDING GLASS PANEL DOOR



TYPICAL 16 X 7 INSULATED METAL OVERHEAD DOOR

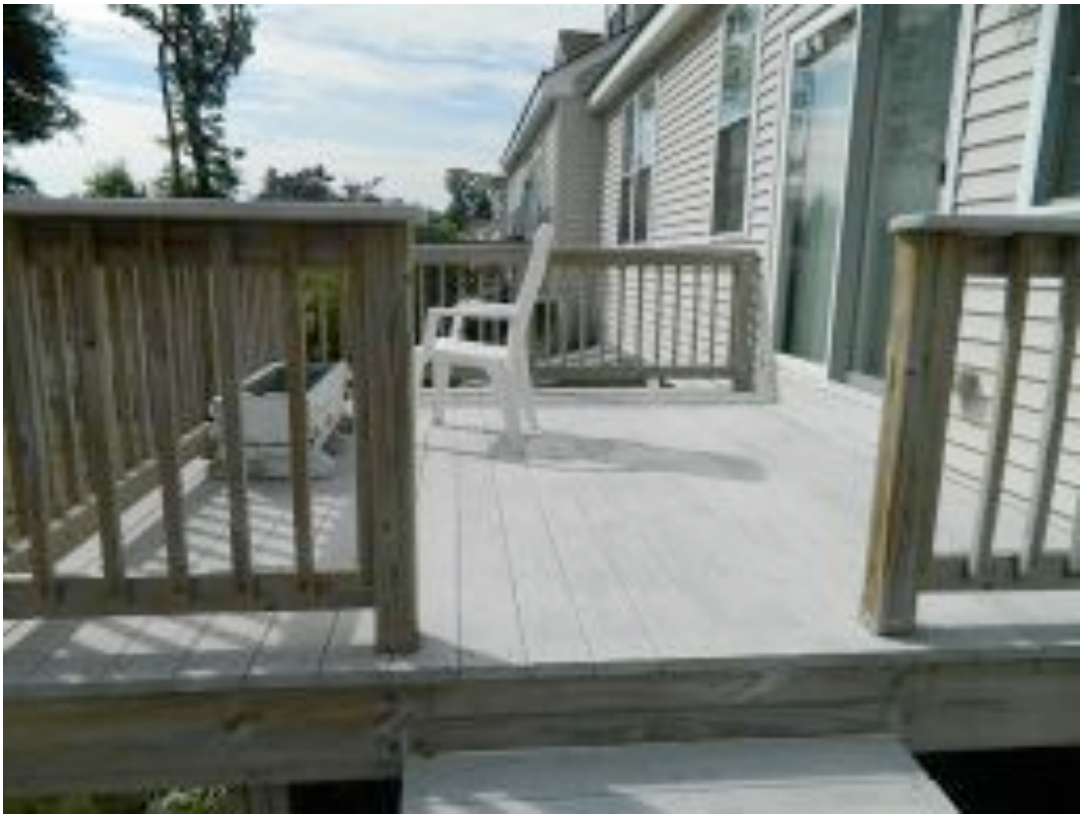


TYPICAL ELEVATED OPEN WOOD DECK

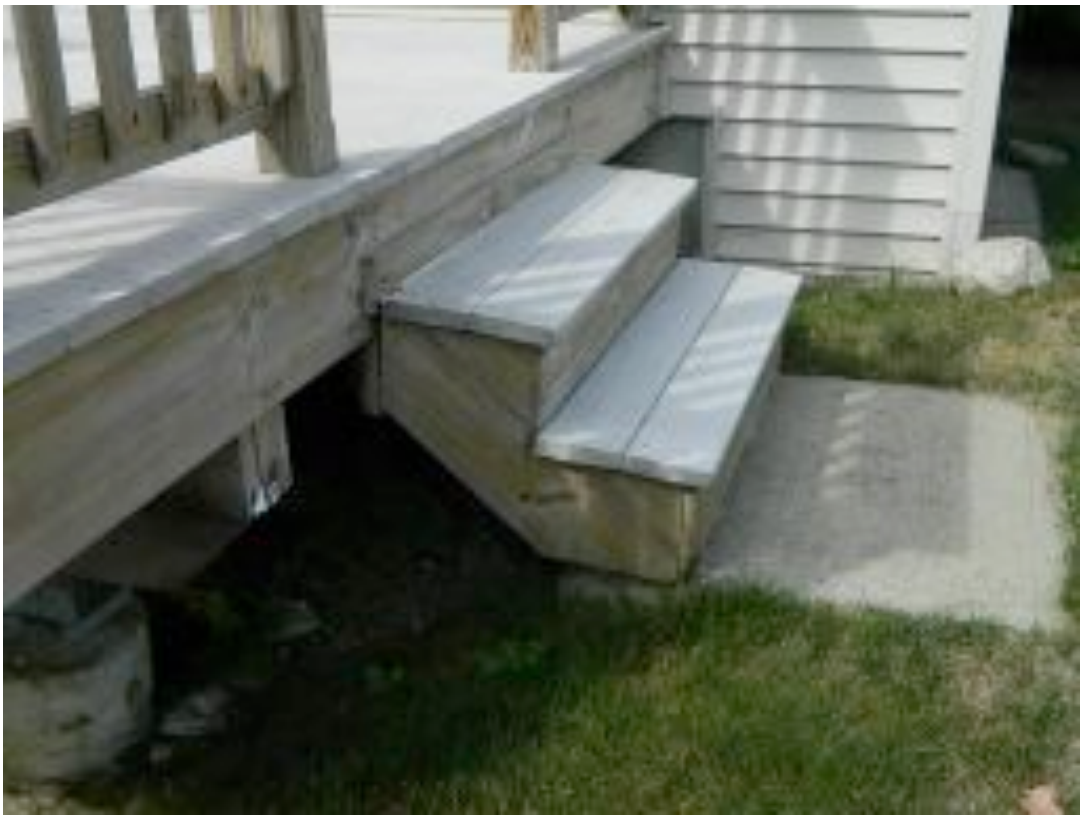


TYPICAL GRADE-LEVEL OPEN WOOD DECK

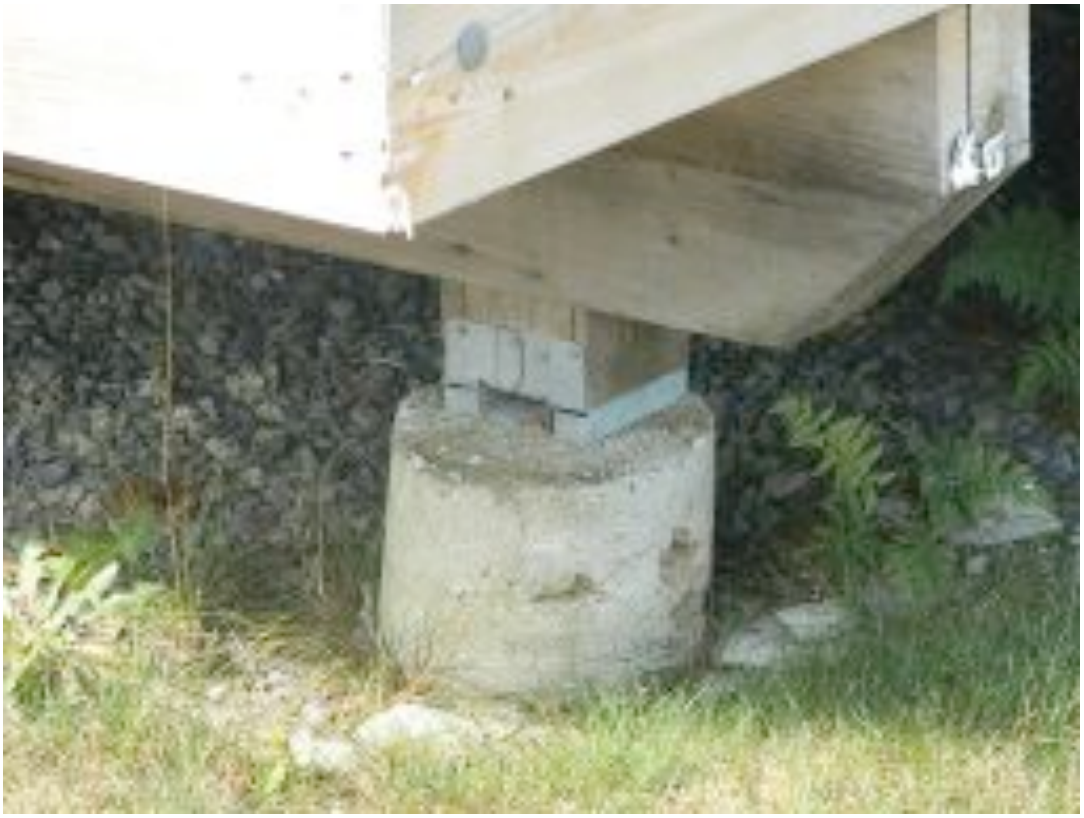
Spyglass Landing Condominium RS – 2016



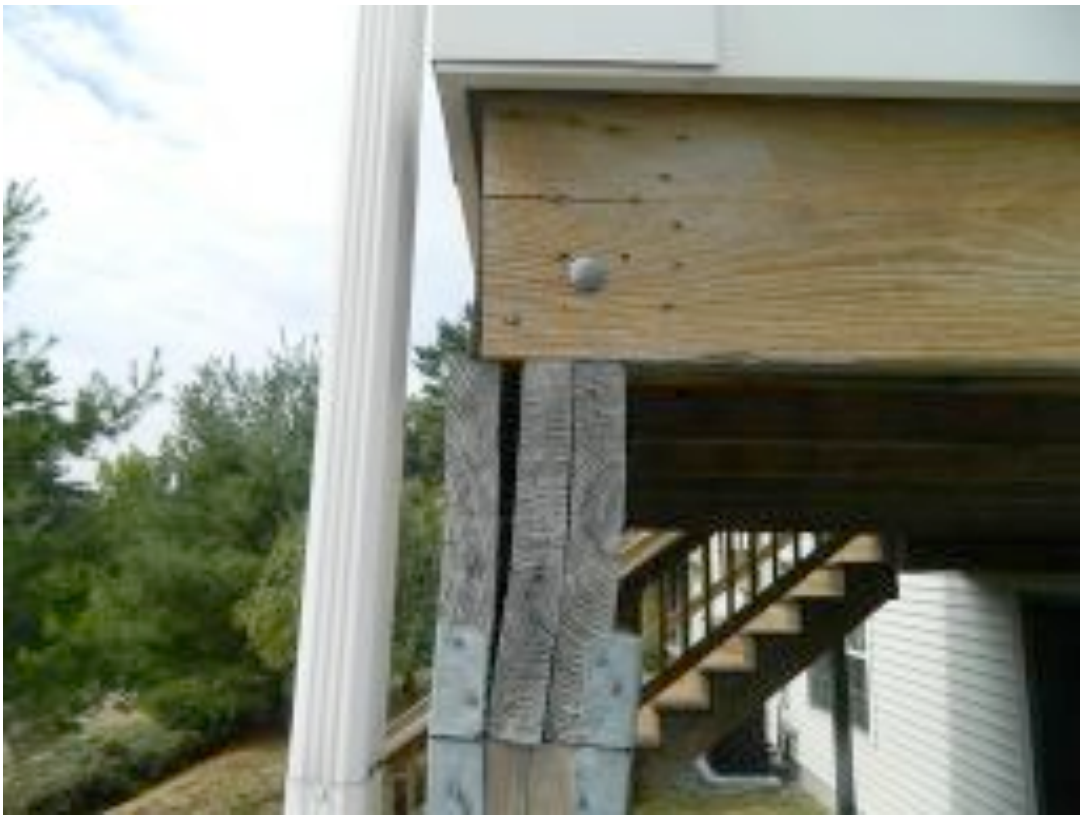
THE DECKING IS SYNTHETIC, THE RAILINGS ARE A COMBINATION OF WOOD AND SYNTHETIC



SOME OF THE STEPS HAVE SETTLED



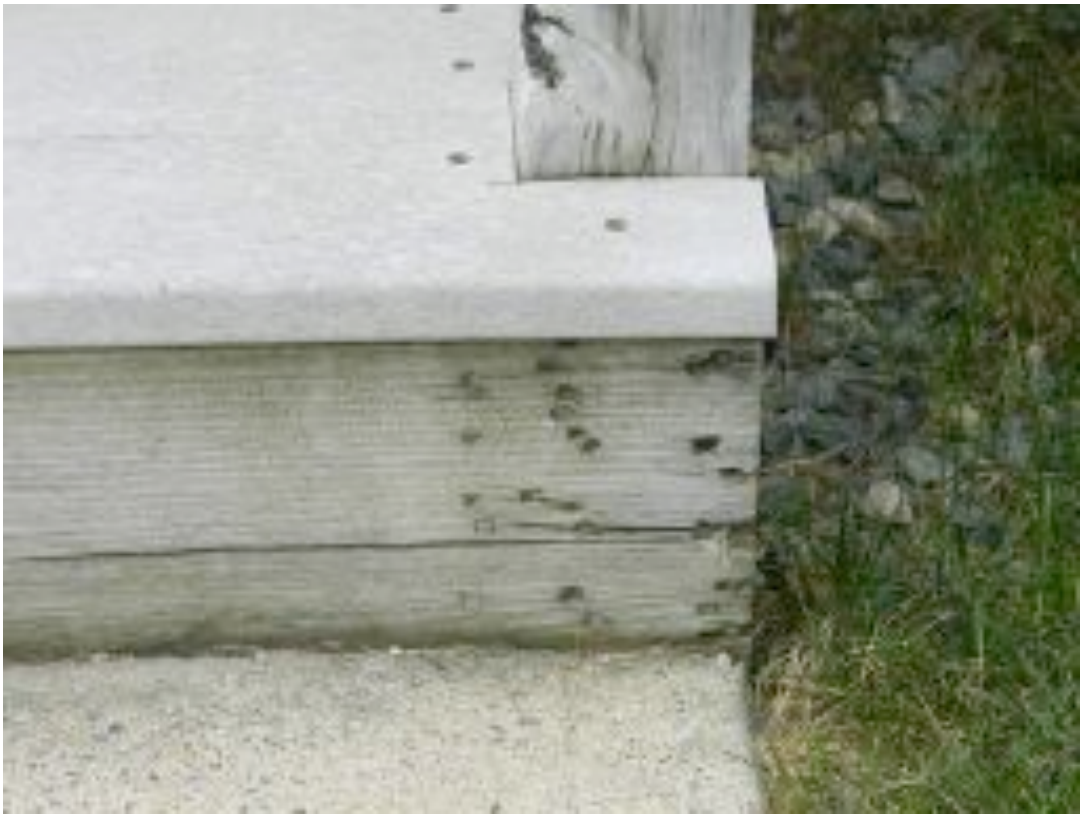
THE DECKS REST ON POURED CONCRETE FOOTINGS



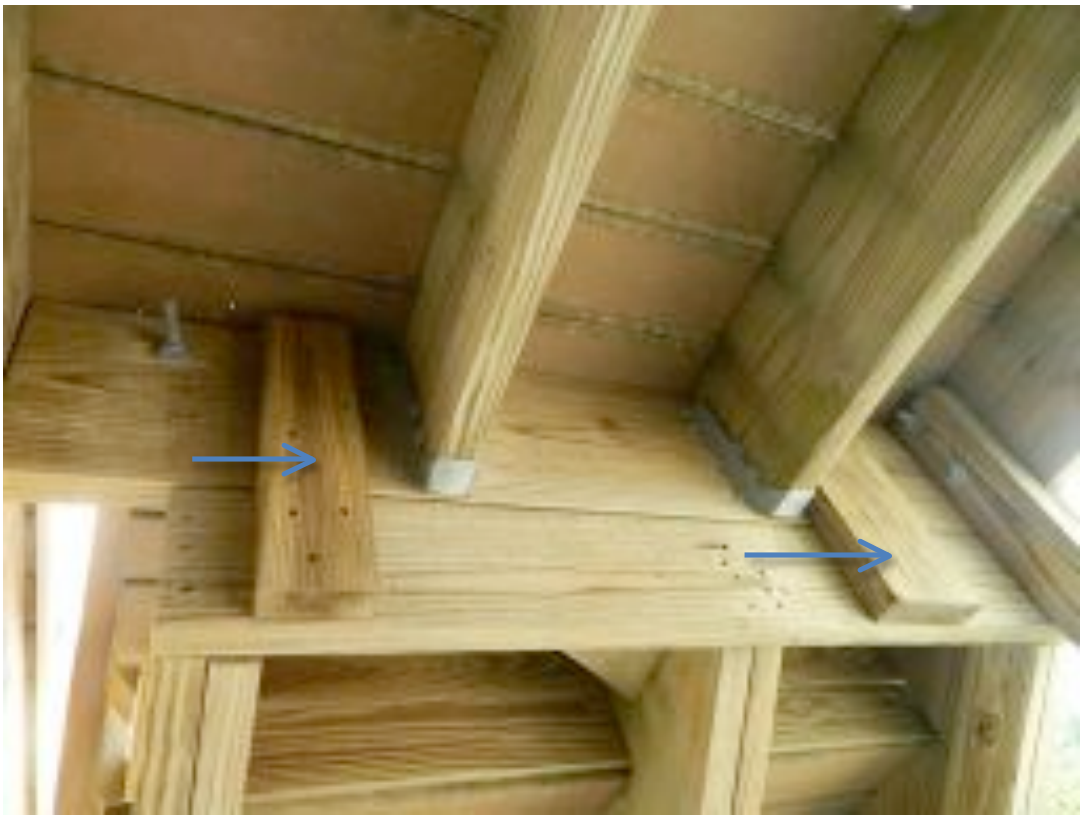
POOR ATTACHMENT AND FASTENER CHOICES HAS COMPROMISED SOME DECK FRAMING

THE SYNTHETIC DECKING IS ATTACHED WITH SCREWS THAT HAVE RUSTED

SETTLING DECK STEPS AT THE REAR DECK OF 22 SCHOONER

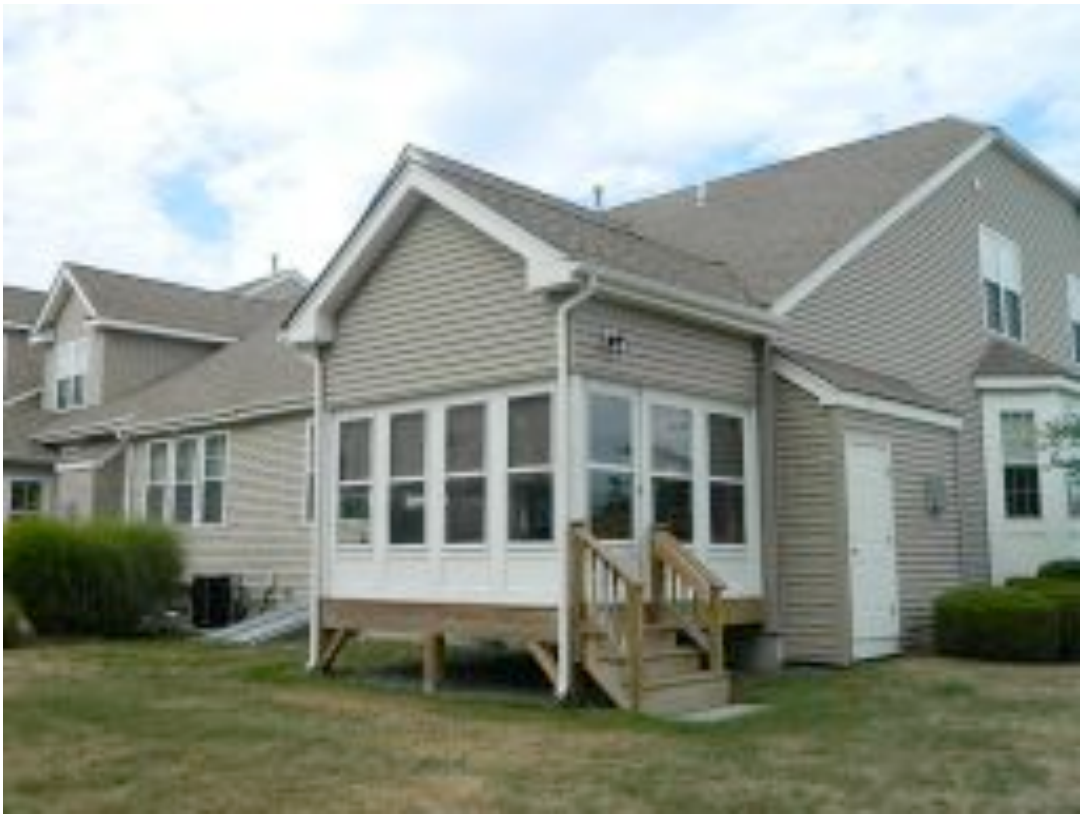


MANY OF THE DECKS ARE “OVERNAILED” WITH INAPPRORIATE FASTENERS

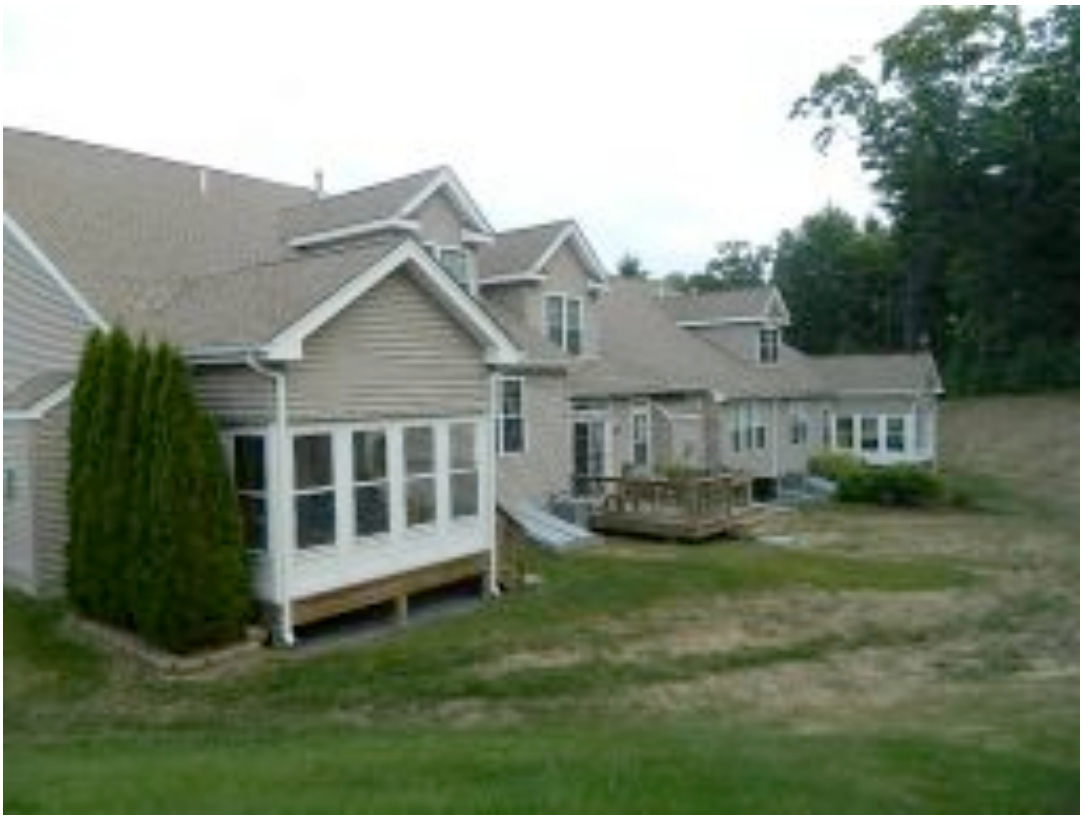


OPTIMALLY THE STRINGER BRACKETS SHOULD BE BOLTED (FASTENED WITH NAILS ONLY)

Spyglass Landing Condominium RS – 2016

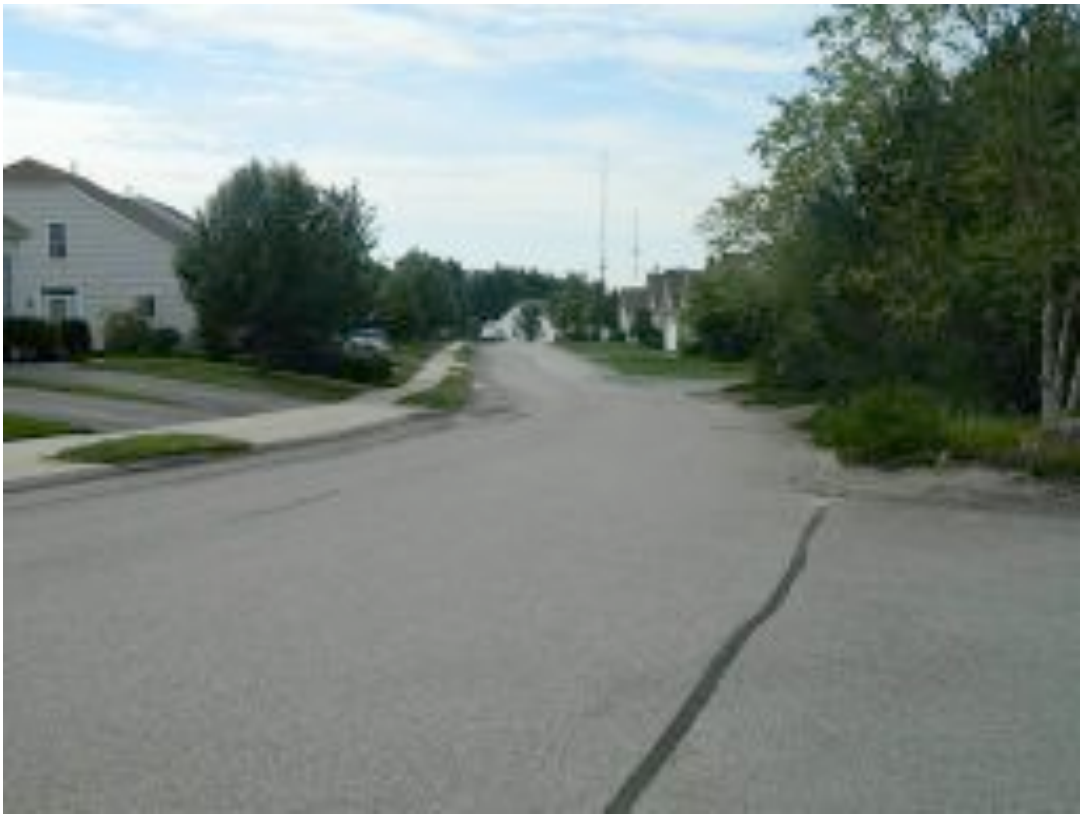


TYPICAL ENCLOSED SUNROOM

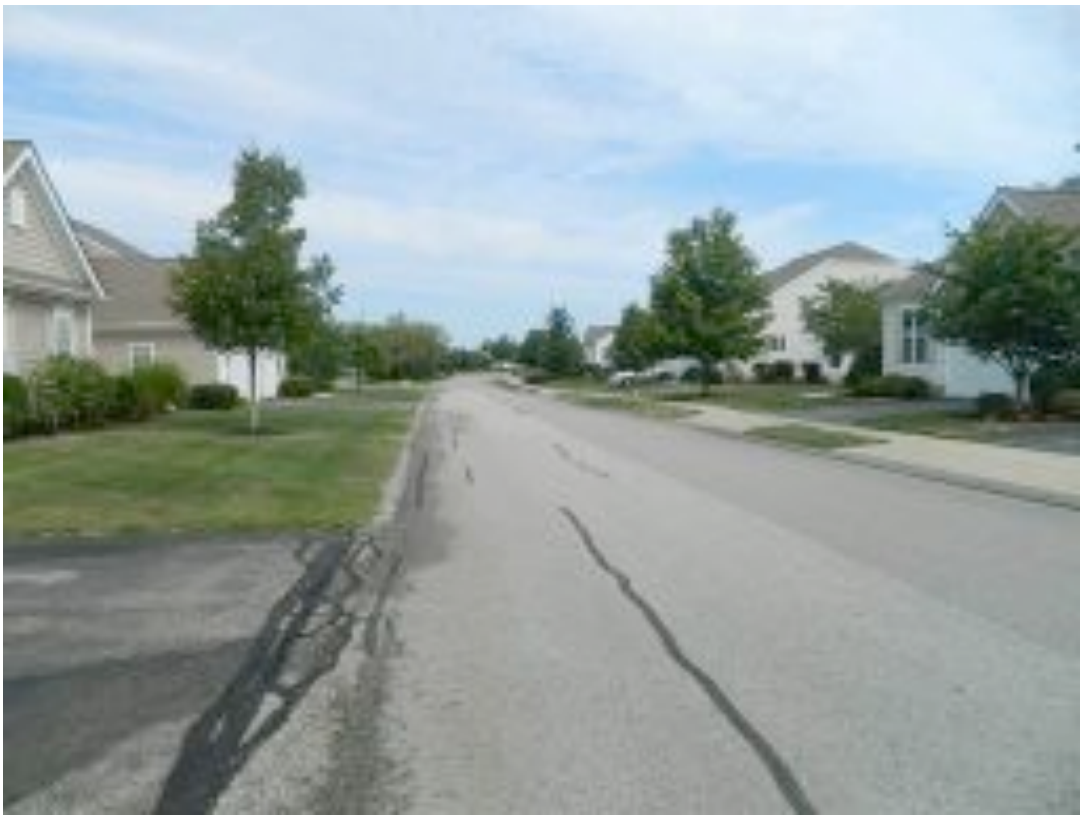


THE BUILDINGS HAVE A COMBINATION OF OPEN DECKS AND SUNROOMS

Spyglass Landing Condominium RS – 2016

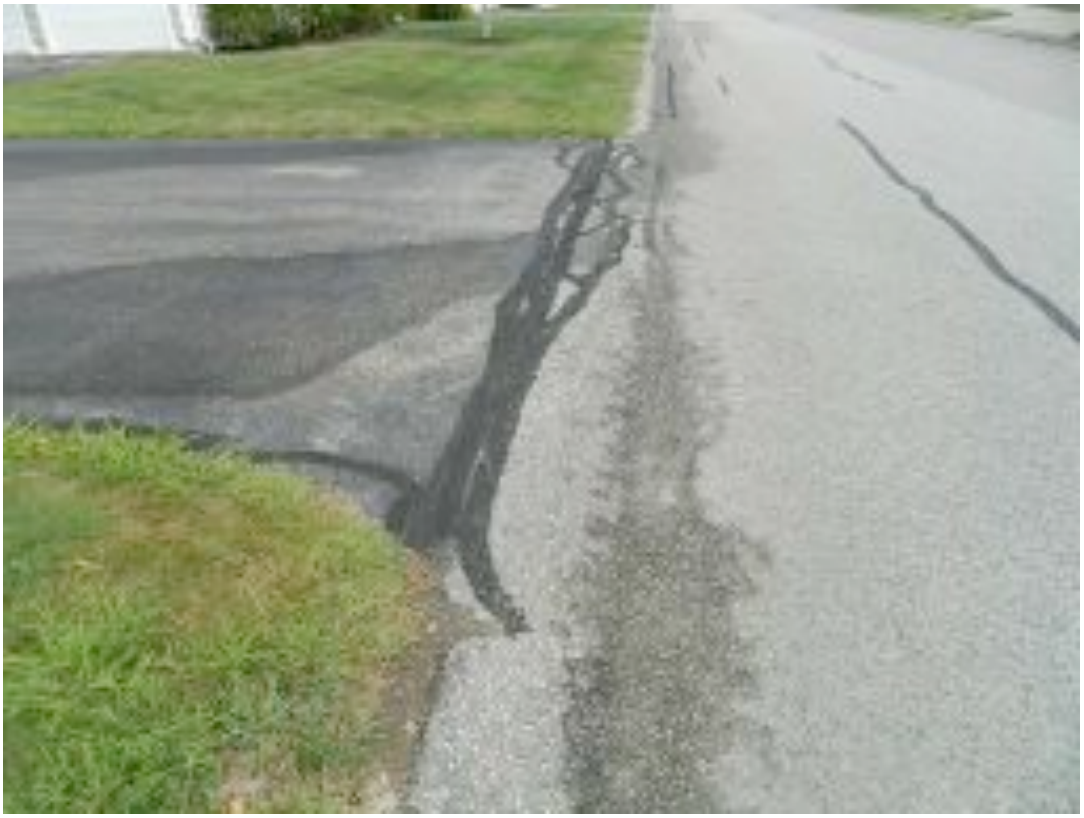


OVERVIEW OF THE MAIN ROADWAYS

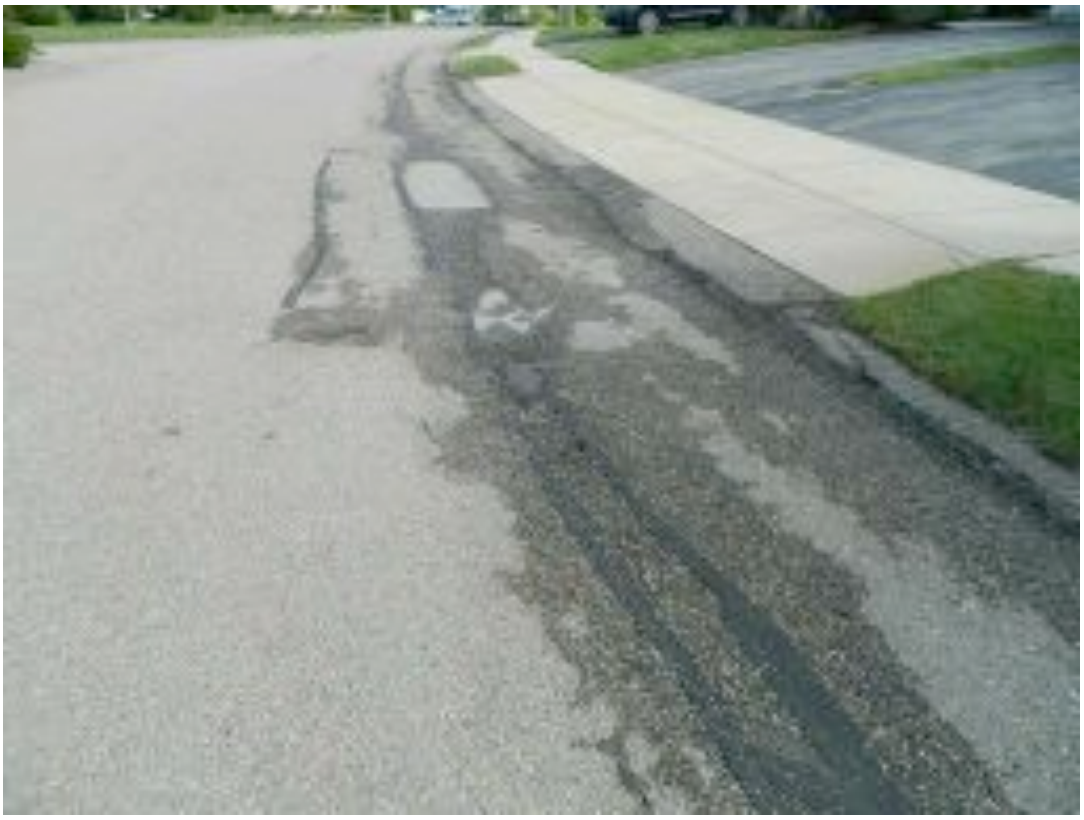


THE ASPHALT PAVEMENT IS IN “AGE APPROPRIATE” CONDITION

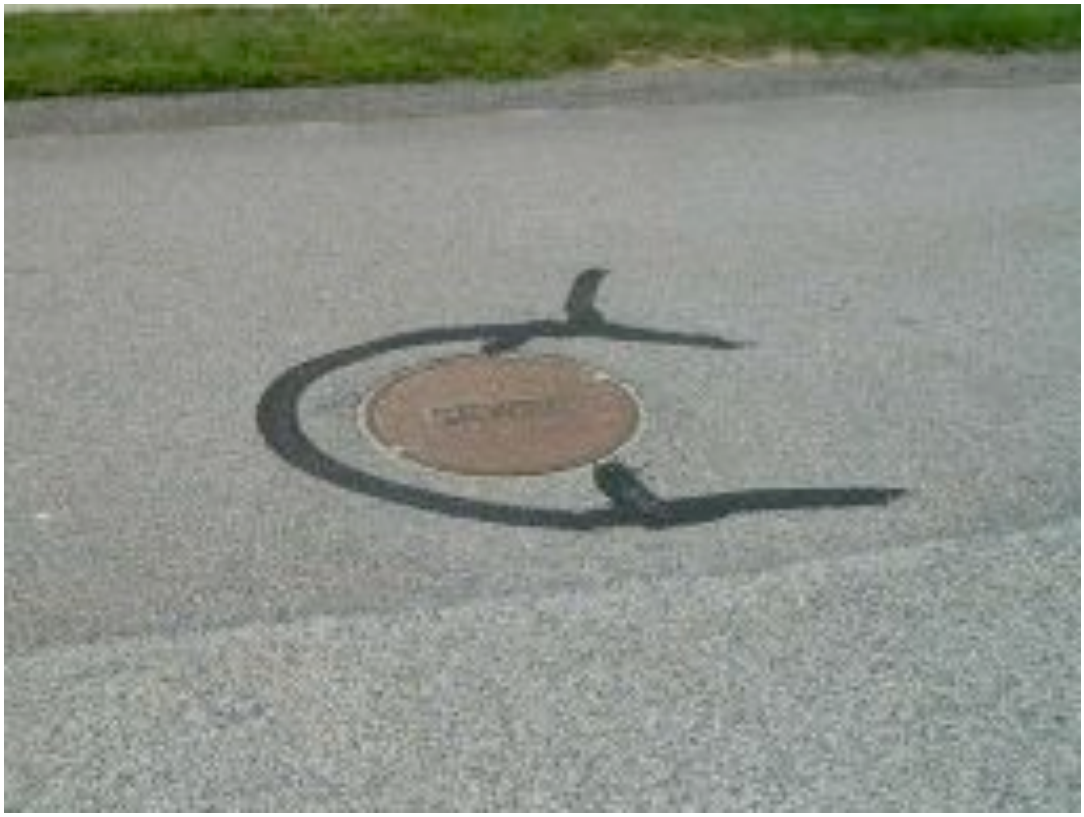
Spyglass Landing Condominium RS – 2016



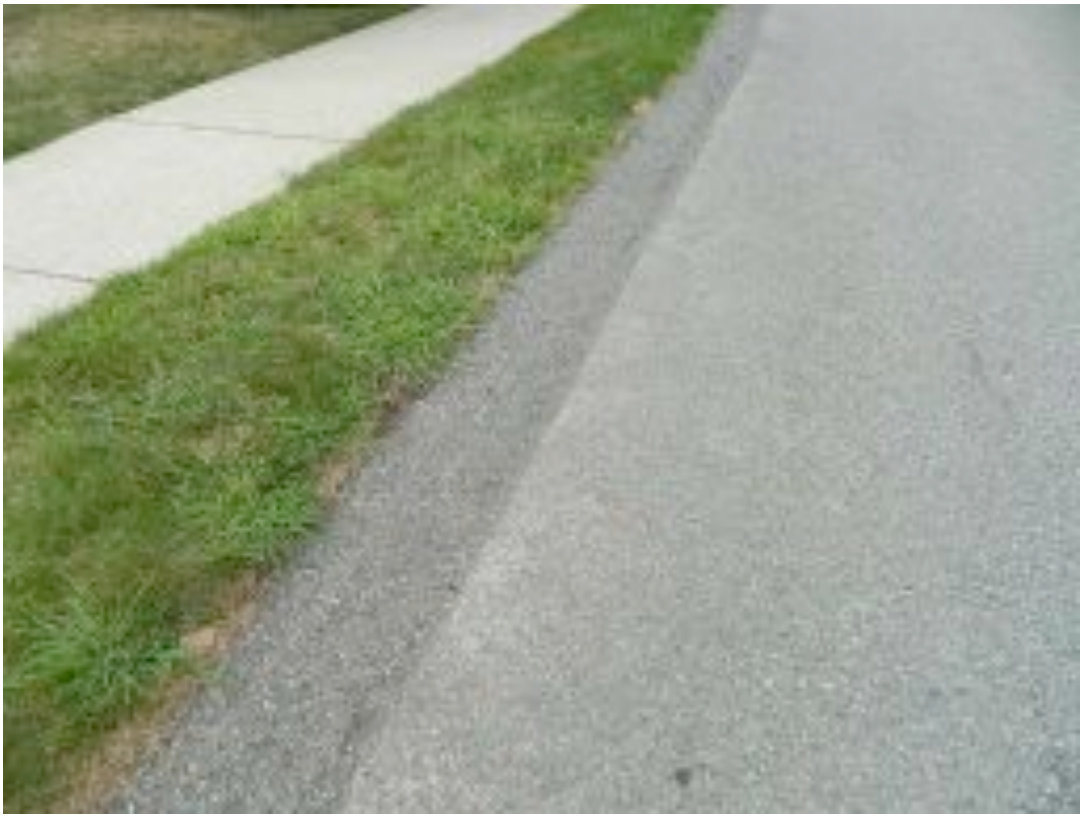
SEALED CRACKS WERE FOUND AT THE END OF MOST DRIVEWAYS



DRIVEWAYS ON THE SIDEWALK SIDE HAVE CONCRETE WALKS

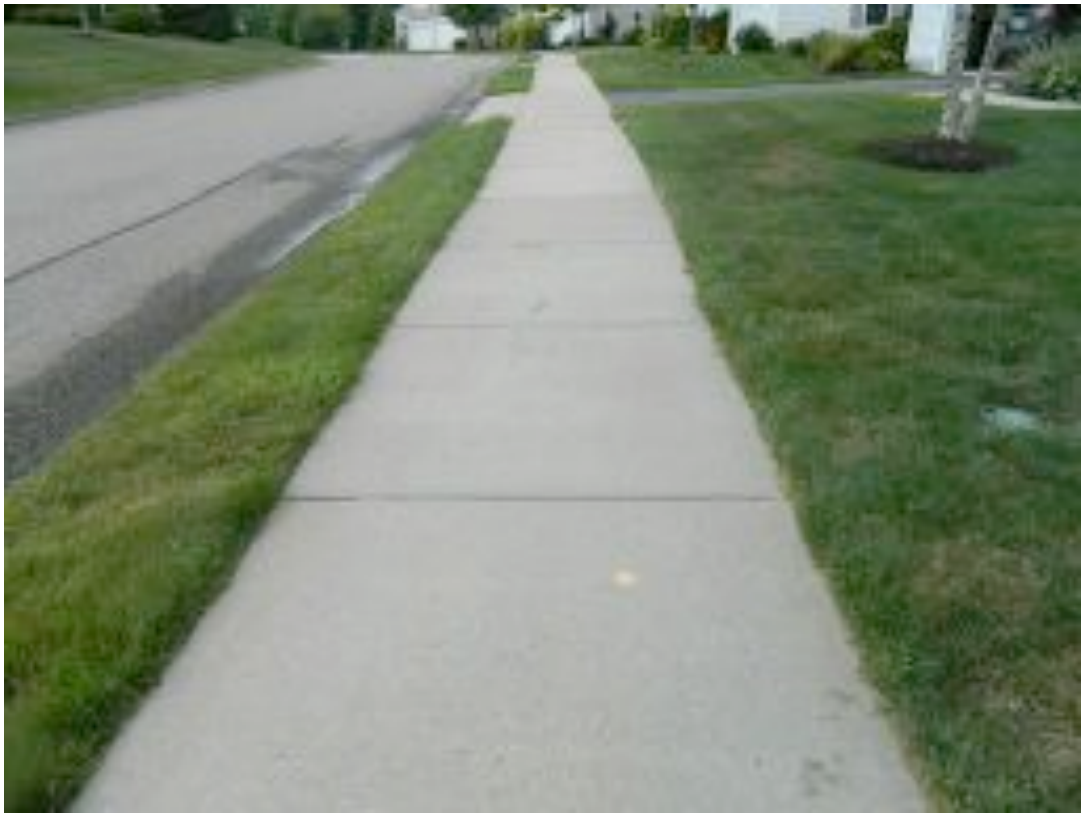


SOME SEALED CRACKING WAS NOTED AROUND ROADWAYS STRUCTURES

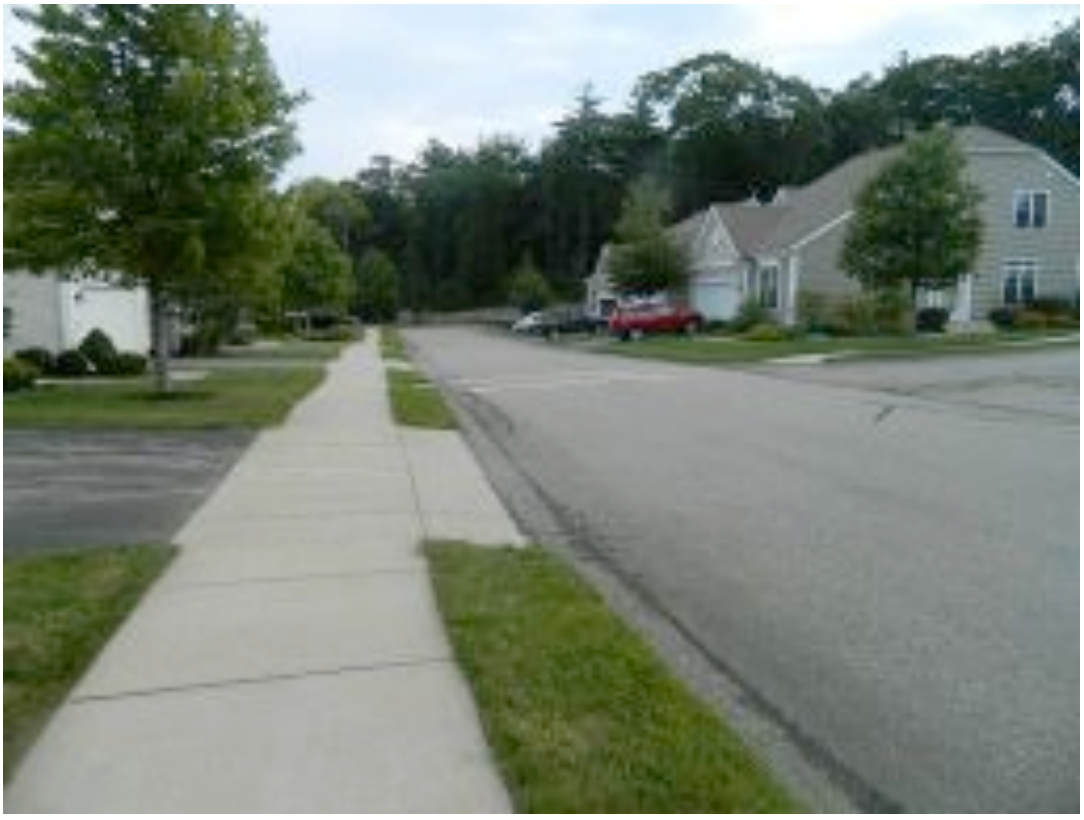


TYPICAL EXTRUDED CAPE COD BERM

Spyglass Landing Condominium RS – 2016

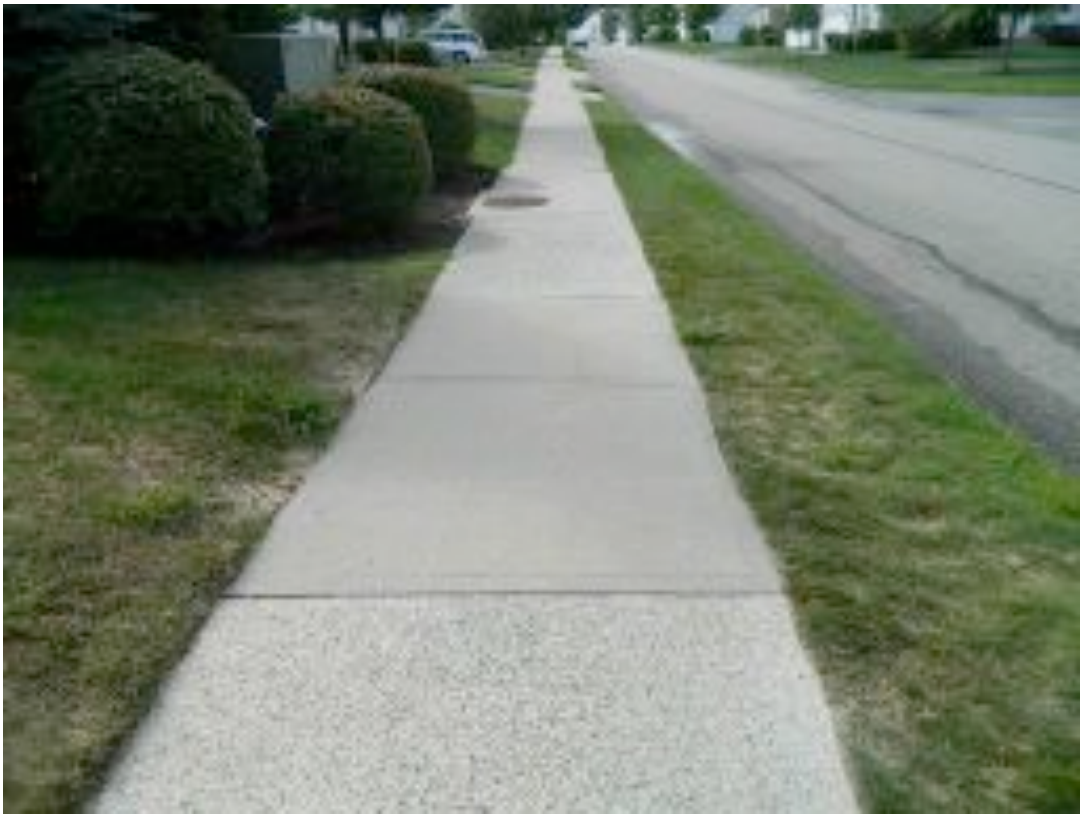


TYPICAL CONCRETE SIDEWALK

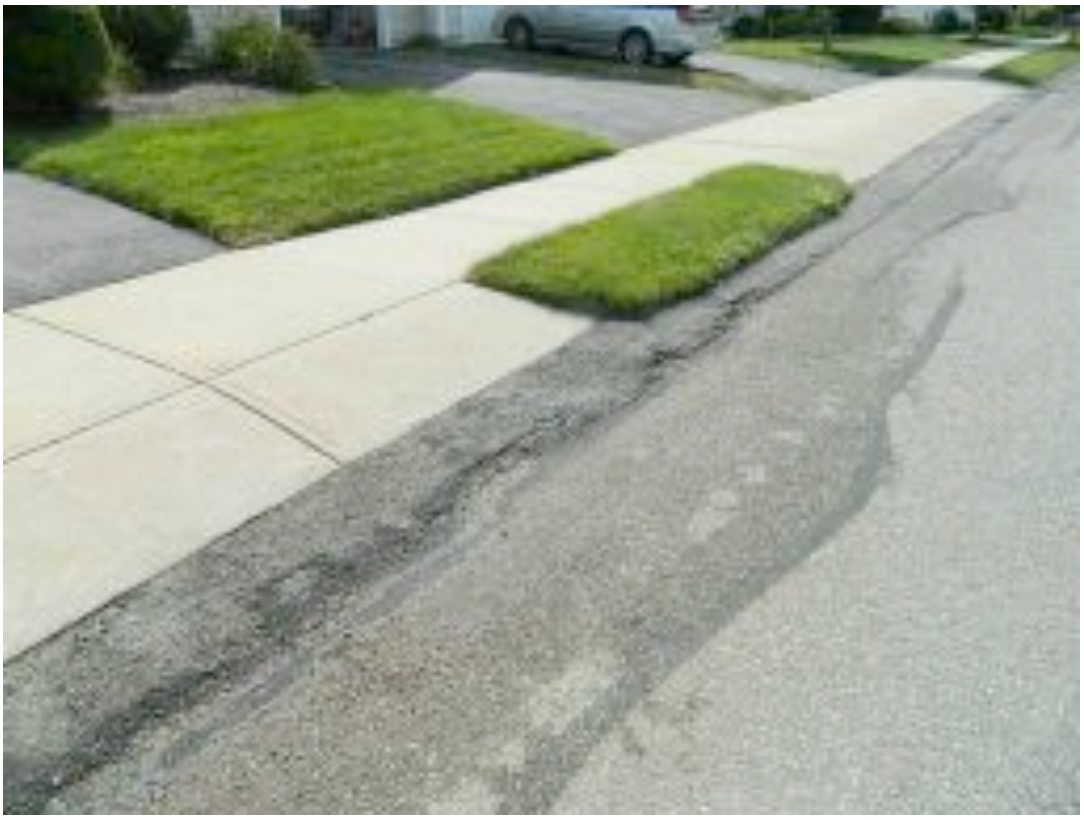


NOTE CONCRETE WALK AT THE END OF SIDEWALK SIDE DRIVEWAYS

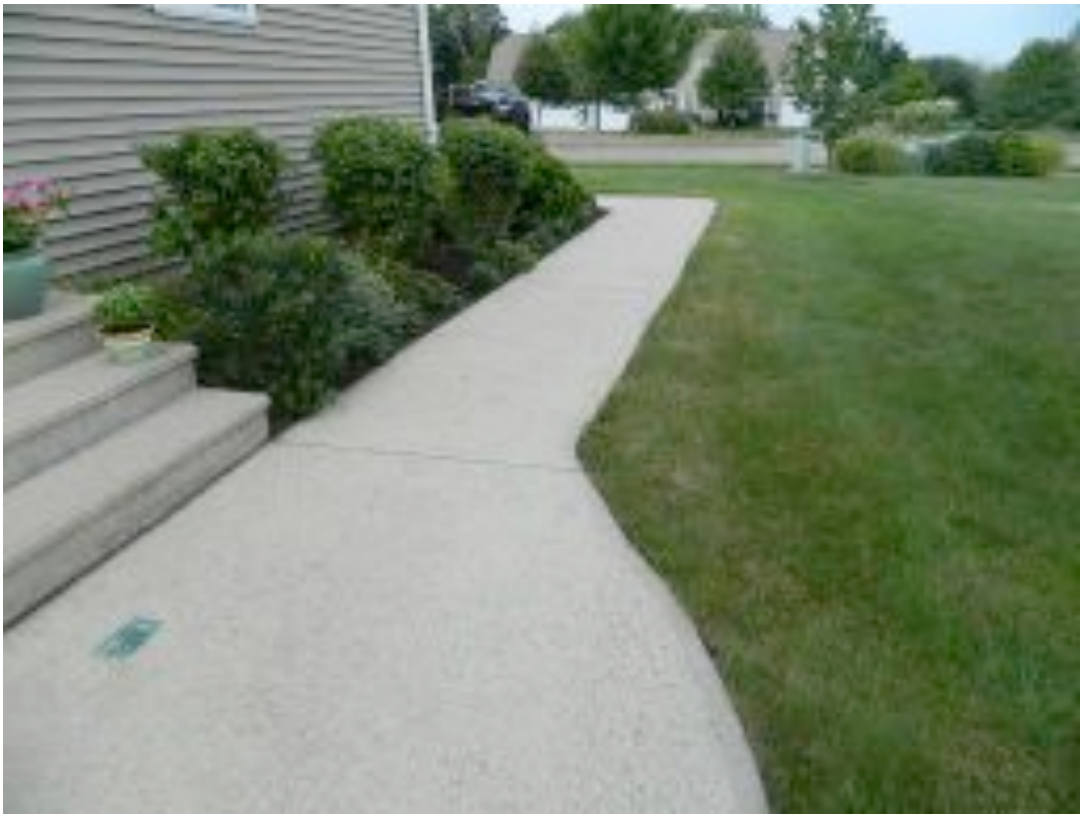
Spyglass Landing Condominium RS – 2016



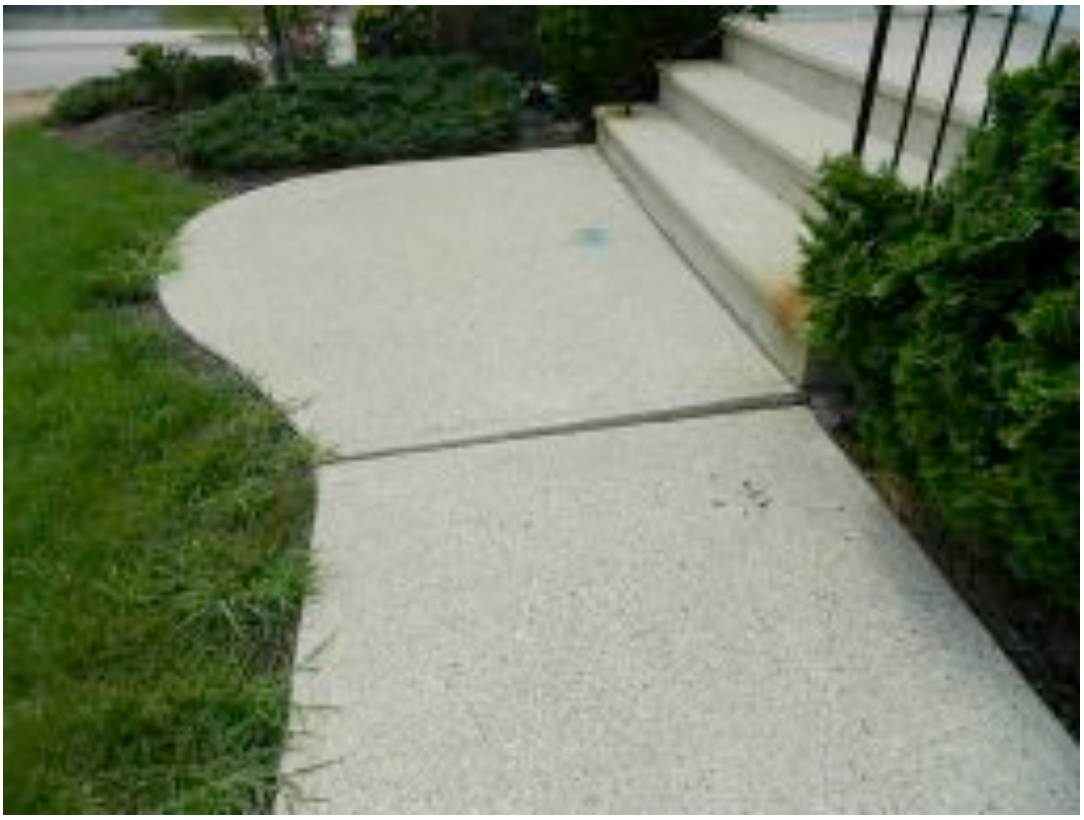
SOME INDIVIDUAL PANELS HAVE BEEN REPLACED



MOST OF THE CONCRETE SURFACES ARE IN GOOD CONDITION



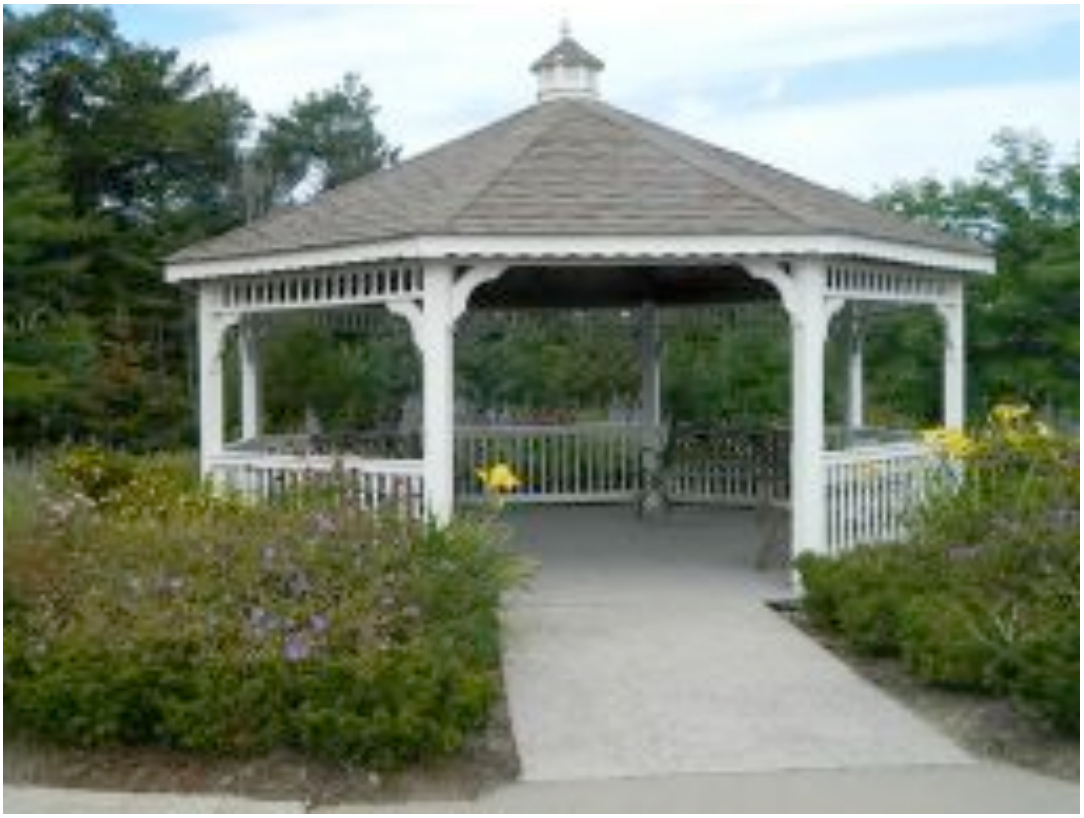
TYPICAL CONCRETE UNIT WALKWAY



A FEW TRIPPING HAZARDS WERE NOTED (NOT WIDESPREAD)

TYPICAL WALL-MOUNTED EXTERIOR LIGHT

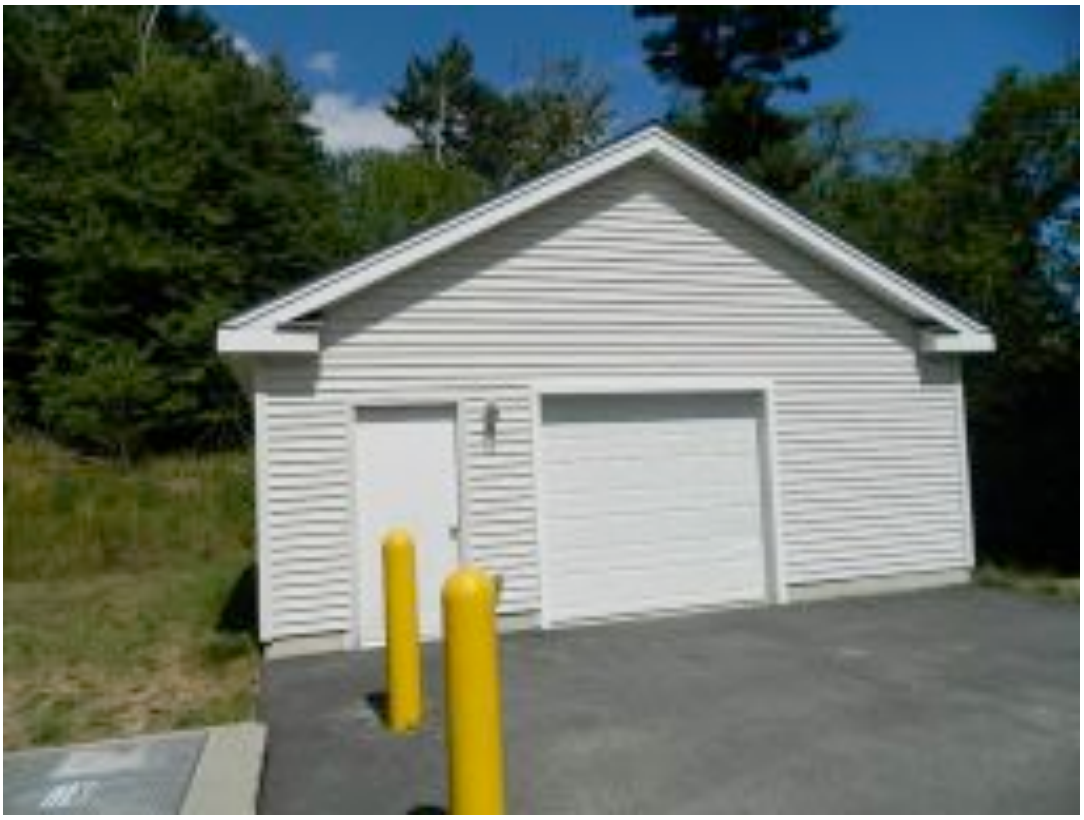
TYPICAL POLE-MOUNTED STREET LIGHT



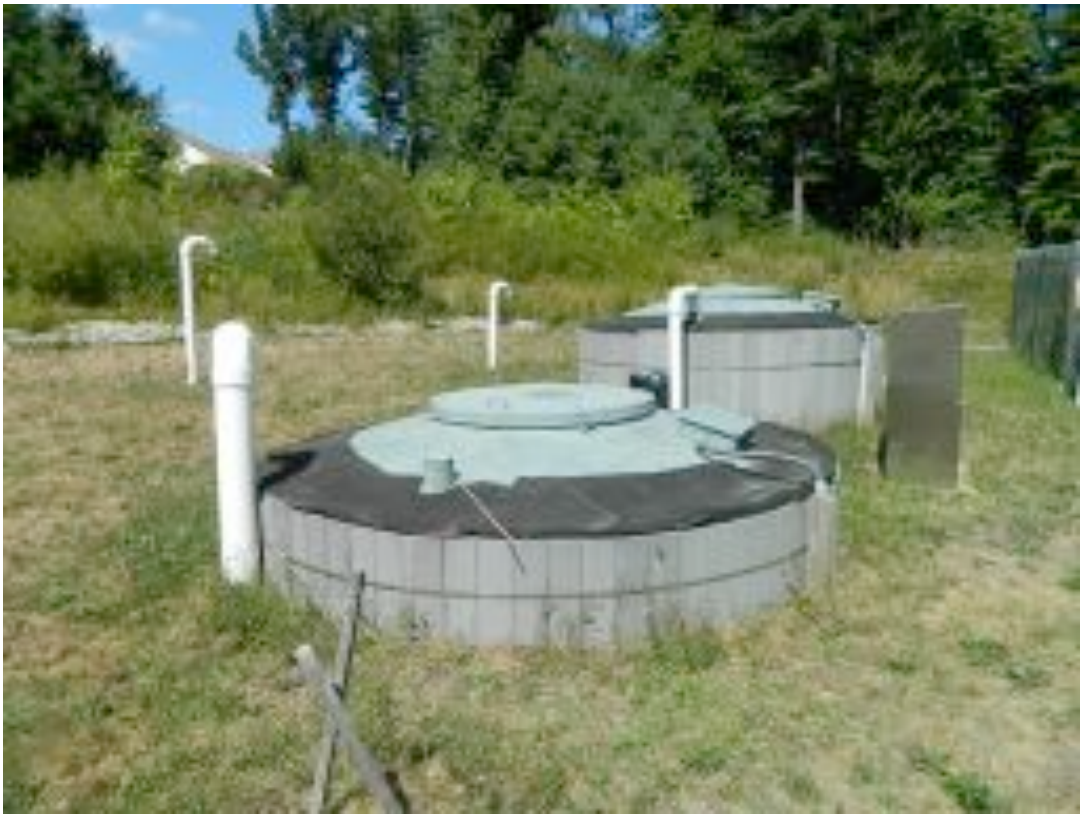
OVERVIEW OF THE CENTRAL GAZEBO

OVERVIEW OF THE MAIL STATION

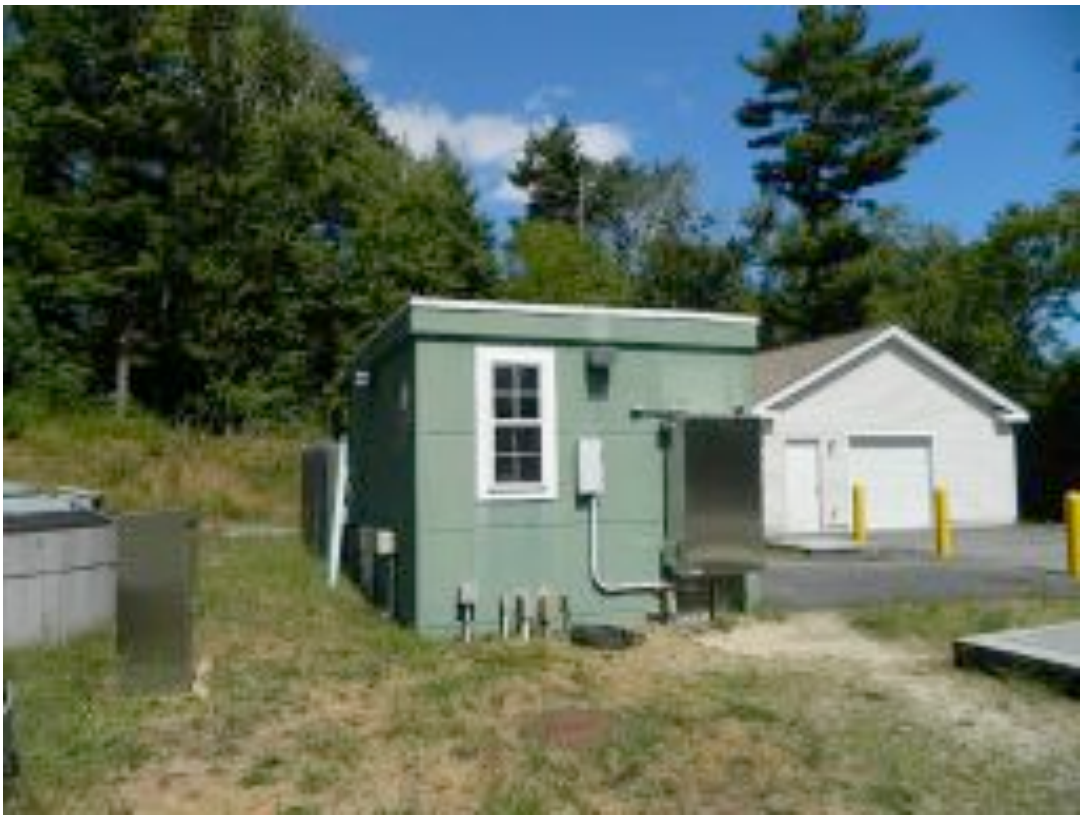
TYPICAL ON-SITE TRANSFORMER



OVERVIEW OF THE WWTP AREA STORAGE GARAGE



BIOCLERE TANKS



WWTP CONTROL BUILDING

APPENDIX A
WWTP - FINANCIAL ACCOUNT REPORT

1. SPYGLASS LANDING WASTEWATER TREATMENT PLANT

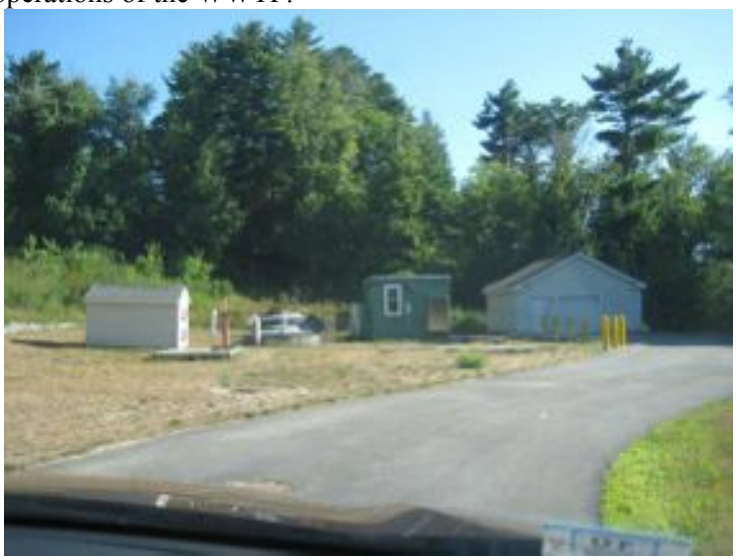
Background

Spyglass Landing Condominium Association, Inc. (the "Association"), located in Marshfield, MA, is a residential development consisting of 84 age 55 and over housing units, located at 192 Grove Street, Marshfield, MA. It owns and operates a wastewater treatment plant, under a Groundwater Discharge Permit (SE#1-754), issued by the Massachusetts Department of Environmental Protection (MassDEP), on April 7, 2016 to Pulte Homes of New England, LLC., and transferred to the Association in May 23, 2016.. Noblin Associates, LLC/CAQ Engineering Associates, Inc. were retained to conduct a long-term capital reserve study.

To prepare this study, CAQ met with Mr. Donald Springhetti and Mr. Bernard Kiley of the Association's WWTP Committee, on August 9, 2016, to review the site, the leaching area and the Wastewater treatment facility. At this time copies of the Discharge Permit, copies of the pertinent design drawings, copies of the executed Financial Assurance Mechanism agreements, established with DEP, and a summary of construction and follow-up treatment process upgrades were received. CAQ discussed this facility with its contracted operator, Mr. Eric Silvertsen, of Weston & Sampson Operations. CAQ also obtained from the Marshfield Board of Health Department, copies of the monthly Discharge Monitoring Reports and excerpted copies of the Hydrogeologic Study.

Based on the review of data, operational discussion with the operator and the facility itself, CAQ provides observations and recommendations.

CAQ Engineering Associates, Inc. (CAQ) is pleased to submit this Engineering Report for the existing Wastewater Treatment Plant and Facilities (WWTP) serving the project known as Spyglass Landing, a multi-family development in Marshfield, Massachusetts. This report is intended to provide the Association with an overview of the long-term capital reserves for the WWTP and recommendations for the continuing of operations of the WWTP.



Wastewater Treatment Building & under ground Tanks

2. EXISTING CONDITIONS

The project is located at 192 Grove Street (Lot 1, along Stonybrook Road), Marshfield, Massachusetts. The project was constructed in 2004, with a design flow of 12,600 gallons per day. The Wastewater Treatment Plant consisted of one 13,000 gallon Primary Settling tank (PT), one 7,000 gallon Secondary tank, two Bioclere units, a 4,000 gallon Anoxic Equalization tank, one 2,500 gallon Anoxic MBBR, one 3,000 gallon Final Settling tank, one 10,000 gallon Dosing Tank, a metering and valve tank, discharging to a subsurface leaching system. This work was completed in 2004. In 2008 air was introduced into the MBBR. In 2009, a two-compartment tank was installed (9,000 gallon settling tank and 9,000 gallon equalization), along with a pump chamber and a flow control chamber. In 2013, an additional 2,500 Anoxic MBBR and two 5,000 gallon settling tanks were installed. This combination completes the treatment process currently operating.

Wastewater Treatment Tanks and Building

The collection system consists of one remote pump station at the northern end of the site and gravity sewer for the remaining site, discharging to the wastewater treatment site, shown above. A French drain, about six feet deep, was added on the west side of the plant to divert runoff from the adjacent slope around the plant area to the north.

Underground tanks

Bioclere units and Control building

Groundwater Discharge Permit

A groundwater discharge permit was issued by MassDEP, on April 7, 2016. Permit expires on April 7, 2021 and renewal is scheduled for November 7, 2020.

Subsurface leaching area

A review of the Hydrogeologic study completed for DEP, the leaching area consisted of several layers of sands and clays, therefore the entire area of leaching was excavated some 34 feet and backfilled with leaching sand, where three leaching chambers were built. Each chamber is 109 feet long by 9 feet width and 6 feet depth and is composed of a series of interconnected leaching pits.

3. ON-GOING OPERATIONS

CAQ discussed the site with the plant's operator, Mr. Eric Silvertsen of Weston and Sampson Operations, to review existing operation and performance. The current system configuration is performing appropriately and is meeting Discharge Permit limits, with standard operational care.

Back-up Generator: The existing generator provides back-up power, via an automatic transfer switch. Weston and Sampson Operations is responsible for its maintenance and exercising.


Back-up Generator

4. VENTILATION IN CONTROL BUILDING

The treatment process is underground, outside the control building. It only houses the electric controls and stores some chemicals. Due to its exposure to sun, an exhaust fan should be on a timer, to prevent heat damage to the control equipment, in the summer months.

5. FINANCIAL ASSURANCE MECHANISMS (FAM's)

Escrow Agreement for the ImmediateRepair and/or Replacement Account:
On May 23, 2016 Spyglass Landing Condominium Association, Inc. through it's Escrow Agent, Arbor Management Company, Inc. entered into an agreement with DEP, which is based on a construction cost of the WWTP of $639,300.00 dollars, thus requiring a 15% escrow account, $95,895.00, be maintained. This account is not part of the WWTP long-term capital reserves, as the Association must replenish the fund within ninety (90) days of any disbursement from this account.

Trust Agreement for the Capital Reserve Account:
In May 23, 2016 Spyglass Landing Condominium Association, Inc. through it's Trustee, Arbor Management Company, Inc. entered into an agreement with DEP, which is based on a construction cost of the WWTP of $639,300.00 dollars, thus requiring a 25% escrow account, $159,825.00, be achieved in 18 years, thus requiring yearly deposits of $8,879.17.

6. RECOMMENDATIONS

Based on the above summaries of the different functions of the equipment, CAQ offers the following comments:

The perimeter drain in place around the treatment plant site, the existence of impervious layers and the visual appearance of some infiltration in the tank seams, suggests that close attention should be of importance and that repairs of leaks be completed before they become large and impact the daily flow or the treatment process itself.

The seals on the Bioclere covers should be replaced at some agreed upon frequency, to maintain proper operation.

Disinfection was not required by the recently issued Discharge Permit, (the Hydrogeological Report states that "The proposed sanitary leaching facility is not located within the zone of contribution of any public water supply", even though the system is within a mile of a couple of Marshfield wells. In a discussion with the design engineer, Mr. Daniel Coughlin, this application was "grandfathered". Should you modify the permit, this may become a requirement. This would encompass another underground tank where an ultraviolet unit would be placed and the final pumps would have to be adjusted for the flow rate of the UV Unit – possible financial exposure could be around $25,000.00 dollars.

The Trust account has been set up, based on an original established cost of $639,300.00. This account was set up, by regulation, for a percentage of the cumulative cost of materials and installation, with the expectation that repairs can be accomplished without total replacement. Therefore this value appears to be adequate, since the majority of the equipment consists of concrete tanks, which will outlast the twenty years. As required by DEP for the permit renewal at the end of fifteen (15) years, an Engineering report will need to be prepared, evaluating the condition of the plant and other components of the system. At that point the Association can and if necessary adjust the Trust account.

The Bioclere units are plastic and also should outlast the twenty years. The MBBR consists of netting wrapped media, suspended in the tank. The weak part being the netting, which is randomly hosed for cleaning and therefore inspected at the same time. Media replacement may be necessary, in the MBBR and the Bioclere units. The air blower may need replacement as well. The internal pumps and the final effluent pumps will need repair or replacement; there appears to be redundancy on the pumps, per design. CAQ would recommend that the Association, through it's operator maintain an agreement with a pump supplier for an emergency; in most cases these pumps are fairly common and interchangeable. This is true for the remote pump station as well. The collection system should be inspected every ten or so years for any collapses or root intrusions, but the PVC pipe will outlast the thirty years. With a 2016 value of approximately $440,000.00, the Association may want to plan on repairs on the collection system and remote pump station, and consider an account similar to the Trust or Escrow, set-up as a percentage of this cost with yearly deposits over thirty years. It is highly unlikely that total reconstruction will be necessary.
The final leaching area, of significant cost of installation, should not be a liability, as far as replacement, unless the treatment process is by-passed or the leaching area is hydraulically overloaded. Normal treated effluent is clear water and lacks any nutrients, which would support growth of any nature. My past experience suggests that the life of the leaching should exceed 30 years, or more. A replacement leaching area similar to the existing one could exceed $200,000.00 dollars.

In conclusion, CAQ is comfortable that the two accounts provide adequate financial long-term assurance for future needs, as long as the expenditures for any repairs are replaced. Most expenditures should come from the Repair and Replacement account. The Capital Reserve account should be for major expenditures in the later years of the plant, if necessary.

Thank you for this opportunity to review and comment on the Spyglass Landing treatment works. Should you have any questions or need further clarification, please contact this office.

Sincerely,
CAQ Engineering Associates, Inc.

Carlos A. Quintal, PE
President