Your Condo Common Elements



Hit the Road

By Henry Jansen, P.Eng., ACCI

With summer just barely behind us, what's the rush in reminding the board



it needs to be making paving decisions, now? The reason of course is the board missed the fall deadline for the asphalt plant's closing

last November, and had distractions this spring not allowing early action this year.

The pot holes, sunken sewer hole covers, and expanding pavement cracks will not heal themselves. Before the property manager calls the paving contractor(s) it is best to remember the methods of repairs.

1. Throw 'n' Roll: This is a temporary pot hole repair where liquid asphalt fills a hole and is then rolled over with heavy equipment to compact it.

2. Semi-permanent repair: This is similar to the Throw 'n' Roll except it is more deliberate with the hole properly cleaned and the hole trimmed to sound pavement. The asphalt is then compacted using a vibrating roller or plate.

3. Spray-injection method: This repair uses special equipment to spray a tack coat of asphalt into a cleaned hole and then blowing asphalt and aggregate into the hole. This method does not require compaction.

4. Full-depth roadway replacement: This method rebuilds the pavement by pulverizing the old asphalt and mixing it with cement and water to form a base for a final asphalt surface. This method of course is the most expensive but the best.

5. Infrared repair: This method uses equipment emitting infrared heating to melt the damaged surface and remove defects with new asphalt on the surface. Patches become seamless with less chance of future potholes. This method is often more cost effective than large patch jobs.

So, let us start with the basics. Asphalt pavement is also called bituminous concrete. It is called 'concrete' because like cement-based concrete, bituminous concrete has a mineral aggregate of stone and sand. This aggregate is held together with a binder of petroleum derivative asphalt. Different soil conditions (i.e., sandy subsurface versus clay) will warrant a different mix of asphalt paving but this will be addressed by whoever creates your bid documents and specifications. For planning purposes, your board should assume paving will last about 20 years.

For purposes of discussion we will assume to be dealing with existing asphalt paved roads, parking areas and/ or driveways. Typically, roadways have a sub-base of 100 to 200 mm (4 to 8 inches) of a well-drained, compacted soil and gravel mix. The first layer of paving is called the binder course and it is 38 to 50 mm (1 $\frac{1}{2}$ to 2 inches) thick. This is covered by a topping coat of 38 mm (1 $\frac{1}{2}$ inches).

If it were not for the sun and water,



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asphalt paving would last a long time, but paving begins to deteriorate as soon as water begins to penetrate into the binder course and the UV rays remove asphalt from the topping coat. This can happen in less than five years and is why adding a sealing coat in the first 2 to 5 years is sometimes recommended. It is also an area of confusion.

Sealing coat material does not add back the asphalt lost due to UV deterioration. It only protects the pavement for a period of time from further deterioration such as shrinkage, cracks and reveling (loss of surface aggregate). It does not bridge large cracks or fill in roadway depressions.

When water begins to infiltrate the pavement here in Canada the freeze/thaw cycle takes its toll. Small cracks become larger in the binder course and eventually the subbase begins to fail. At this point surface cracks, settlement, alligatoring and other surface visible signs make an appearance. Your Maintenance Plan should immediately address these problems by having crack filling as a yearly project. The cracks should be filled with standard joint filler to within 3 to 6 mm (1/8 to ¹/₄ inch) of the top of the crack. Similarly, surface depressions and sink areas should be addressed annually as well.

After fifteen years, major paving projects might present themselves. Sometimes a major re-surfacing project can be delayed with judicious removal of large areas of deterioration and repairing the sub-base followed by a 38 mm (1 $\frac{1}{2}$ inch) binder with a 38 mm (1 $\frac{1}{2}$ inch) top coat. If the roadway or parking area deterioration is judged to be widespread, the options include a reclamation project where the top 150 to 300 mm (6 to 12 inches) of pavement and sub-base is ground into a recycled material that can be reused for a compacted and graded foundation for a new paving surface. This minimizes trucking and labour costs, and extra materials costs.

So, if you have not done anything with your paving, it may be time to hit the road. ■

Henry Jansen is president and owner of Criterium-Jansen Engineers and specializes in Reserve Fund Studies and condominium-related projects. www.criterium-jansen.com

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50 | CM Magazine FALL 2018