

## **Introduction**

It's Christmas Eve. You go to Midnight Mass and you come home to your house in flames and six members of your family gone. What went wrong? A fireplace flue that had no obvious defects, was in reality dangerously defective. If a video inspection unit had been run, it would have found holes in the mortar.

## **Purpose and Scope**

The purpose of this report is to recommend and advise that all chimney sweeps and the company owners do a video inspection of every flue they sweep. There are three main reasons why. One would be the safety factor and comfort zone of the homeowner's, the second would be for documentation purposes and third is the notable increase in revenue and profits for the company. My recommendations come from 19 plus years experience as a manager of a chimney sweep company. Part of my duties includes finance and customer satisfaction. I have personally seen numerous video inspections documenting the defects and damage in a chimney. The video inspections and documentation are a catalyst for repairs and are beneficial in increasing revenues for the company.

## **Assumptions**

That revenues and profits will increase with regular use of Video Inspections Systems.

## **Methods**

Information for this report comes from a variety of sources. Interview's with different company owners, (including the owner of the company I work for), and the owner of the inventor of the video inspection system we use. Information found in the library, online sources, trade organizations and newspaper articles was also used.

## **Limitations**

Limitations would be that only a few owners were interviewed out of the hundreds of chimney sweeps and chimney sweep owners there are.

Chimney fires can be devastating, causing loss of property and more importantly loss of lives. Here in Columbus, Ohio we had a tragic example of how an unsound chimney caused the death of six people. The property loss was in the hundreds of thousands of dollars. Newspaper articles about the fire stated that on Christmas Eve Dr. & Mrs. James Ferraro left to go to Midnight Mass leaving their three children, John's mother, his nine-month pregnant sister and her husband at home. While they were gone their house caught fire and only one person, the brother in law, survived. (Ellis A1)

According to the article by Mark Ellis in *The Columbus Dispatch*, Captain John Haney of the Upper Arlington Fire Department said that they "determined to the best of their ability that sparks or flames, most likely sparks, came out of the chimney onto the headers and wood joists in the ceiling and ignited the wooden beams." When the firemen built another fire the next day and covered the top of the chimney to test it they watched smoke filter through numerous holes in the mortar. (A1) What a tragedy.

Figure 1  
**Chimney Fire**



One of the things that video inspections point out is cracks in flue tiles and missing mortar joints where sparks or flames can get through or where heat transference will be maximized. Jim Brewer, owner of Magic Sweep in Virginia, is also recognized as a leading expert on chimneys by the Chimney Safety Institute of America. (C.S.I.A.) He said, "Most chimney fires start due to improper clearance to combustibles on the outside of the chimney."(Interview) Now you

normally won't be able to see those clearances without tearing holes in houses but with a video inspection unit you can see the cracked tiles and broken or missing mortar joints which can lead to more heat transference from inside the flue to the outside of the flue.

### **Chimney Flues Intended Function and Facts about Fires**

*Chimney Fires, Causes and Effects*, put out by the Chimney Safety Institute of America, (C.S.I.A.) in May of 1992 states "It should therefore be clear that when codes and standards call for a continuous, intact flue lining to contain the products of combustion – as they have for over 70 years – that it is their intent that flue lining retain its essential functional characteristics. If it loses the ability to perform its intended function, through damage or deterioration, the need for repair is obvious." (Section 1.3.1 pg 1-12 paragraph 2). The National Fire Protection Association (NFPA) code number 211 (13.9 pg 211-44) states "If the flue liner in a chimney has softened, cracked, or otherwise deteriorated so that it no longer has the continued ability to contain the products of combustion (i.e., heat, moisture, creosote, and flue gases), the liner shall be either removed and replaced, repaired, or relined ... with a listed liner system or other approved materials that will resist corrosion, softening, or cracking from flue gases at temperatures appropriate to the class of chimney service."

NFPA has documented that in 2000 to 2004 the average number of confined chimney or flue fires was 26,200 annually, no deaths but at least 40 injuries and over \$15,000,000 in direct property damage. (NFPA) NFPA statistics also show that in 2006 heating equipment fires, including fire's associated with chimney and chimney connectors were involved in over 53,000 fires resulting in 260 deaths, 1300 injuries and over \$500,000,000 in property damage. (NFPA) According to the New York State Office of Fire Prevention and Control in Albany, New York "Nearly all residential fires originating in the chimneys are preventable." If companies take the extra step in the sweeping of the flues they can be directly responsible for help in preventing destructive chimney fires.

### **Customer Satisfaction**

Chimney fires take lives, destroy property and cause devastation. Anything that can be done to promote the safety of customers should be used. Video inspection systems work. They are effective in discovering internal defects of the chimney undetectable by visual inspection as Blackburns Chimney Sweep owner Steve Blackburn stated when interviewed.

The surveys Blackburn's received from customers affirm the need for video inspections. When customers viewed the video inspection, many have said that they feel "safer" and "more confident" having had it done. A few examples of what Blackburn's customers say about the video inspections are shown in Figure 2.

Figure 2  
**Sampling of Customer Comment Cards**

291315	They were very thorough and I witnessed the video and saw the proof. Not just by word of mouth.
289160	They did a great job. I really liked that I could see for myself the shape of the chimney, and the condition of it in the video. There was no high pressure selling of products. I will definitely use your company again, if needed.
291120	Regular, yearly maintenance is essential, and Blackburns state of the art video system gives you an accurate view to make sure your chimney is clean and safe!
331964	Very knowledgeable and courteous. They showed me the entire chimney on the video, and explained proper usage techniques. I will not even look at a competitor for my next cleaning based on the service I got today.
320742	Steve was prompt arriving within scheduled time period. He showed me video of problem area and shared needed repair suggestion. He was not pushy just factual.
344283	The technicians were very careful and knowledgeable about chimneys and the effects of fire damage. They were thorough in their investigation of the chimney using videotape.

### **Documentation and History of the "Chim Scan"**

A second reason for the video inspection system is that it documents any findings for homeowners and insurance companies. If there is fire or other kinds of damage to the lining, a video inspection helps save time in claim processing. Video inspection systems also helps point to the defects that will help the appliance (fireplace, stove) perform better, creating less havoc in the burning procedure.

I interviewed the inventor of this technology, Tom Urban of Estoban Corporation in Fairfield, IA. Initially, the idea for the "Chim Scan" came from a passing conversation with an insurance company agent. Tom said, "I wish we could get a camera up there to see what it (the inside of the flue) looks like." The company agent responded to Tom "... if he ever figured out how to do that call me and my company will work with you". Tom did. That was in the early 1980's.

Tom thought that “if you make it they will come”, but in reality Tom met with much resistance from the chimney sweeps. They couldn’t, wouldn’t get on board with the “Chim Scan” at first. “Chim Scam”, “they are only making things look bigger”, “damage is not really that bad” were just a few of the derogatory remarks that were said about Tom’s invention. But Tom and his wife Esther persevered because they truly believed in what they were doing. Today the “Chim Scan” is becoming recognized even in NFPA 211 our National Fire Code. (Table 14.3.1, Level II, page 211-45)

Tom also believed that chimney sweeps start out at a disadvantage because “we do a dirty job”. “We sweep soot and creosote out of chimneys all day, so our trucks are dirty, our clothes are dirty, and our faces are dirty.” “Compare us to a doctor’s office where everywhere you look it is pristine, clean, sanitized and everyone is in spotless white. Who wants to believe that chimney sweeps know what they are talking about? How much trust are you going to have in someone who looks like chimney sweeps do?” Chimney sweeps needed to overcome that initial stereotype. They had to know what they were talking about and be able to prove it. Sweeps needed to have a professional edge and the “Chim Scan” gave them that edge. They could now show the homeowners and insurance company’s the inside of the actual chimney. Chimney companies now had the ability to point out some of the problems that prevent their chimney from performing as intended. The “Chim Scan” also gave them credibility.

It has taken 20 years for people, including chimney sweeps to understand that this technology is not going away; it was not a fly by night technology. In fact, it has evolved into an even better system through the years. What started as a 4x4x12 inch camera has now evolved into a 2x2x4 inch camera. Besides using TV’s and VHS tapes you can now record everything directly to a computer and it is digitalized. Instead of using the US Mail to send out information to homeowners and insurance companies’ pictures and information can be emailed out.

Tom Urban built a five-foot chimney that had some defects built into it. He took it around to many sweep functions and conferences and had chimney sweeps look up and down the chimney and then write down what they found to be wrong with it. Out of over 1000 plus sweeps looking at the chimney only three people found the defects. One was a “genius” according to Tom, one was an industry person, and one had just run into the same thing earlier that month and felt it with his hand. That is a pretty significant number of “professional” sweeps who missed something that could and most likely would be of major importance and lead to revenue coming in.

According to Tom, some chimney sweeps don't even want to advertise the fact that they use a "Chim Scan", because they consider it their "Secret Weapon". The video inspection systems, ("Chim Scans"), have revolutionized the sweeping industry.

## Financial Reasons

Markets change, including the chimney sweep market. Today the new generation of sweeps focus on technology in order to do their work more efficiently, including the Total Documentation Process, (TDP). This can now be done better and in less time. TDP is becoming more important in the industry and the companies that are doing this are the ones that are succeeding and increasing their business.

Increasing the bottom line is a big incentive for company owners. So, the third reason that all chimney sweeps should use a video inspection system on every chimney sweep is the increase in income and profit. The ability to point out defects in chimney systems from using the camera to see "inside" the flue itself does this exactly.

Why should sweeps use the video inspection system? Jim Brewer of Magic Sweep has been seeing smaller companies making more money than him from relines and other work found by doing a video inspection on every sweep. He recently bought 6 "Chim Scans" from Tom Urban so that all of his sweeps could scan every chimney they sweep.

Steve Blackburn of Blackburns Chimney Sweep, Inc., interview by *Sweeping Magazine* in August of 2002, said "he was looking for more ways to power up his business and set his business apart from the competition. He began to offer video inspections on all sweeps at no additional charge. This turned out to be a silver bullet. As a result of offering this service on all cleanings and repair jobs, he quickly catapulted his business into the top 2% of the chimney cleaning and repair company's in America."(28) Blackburns helped pioneer the "Sweep and Scan" method. "It put our service head and shoulders above our competition in the customer's eyes, and that's where it counts. We didn't jus tell our customers something was wrong: we showed it to them and would even put it on video to document the damage."(28)

Blackburn's has used the video inspection system almost from the beginning but they did not start tracking the usage differences seriously until 2000, when Steve got all of his systems in place that would insure that all of his employees were using the video inspection system on every sweep. Table 2 shows the years between 2000 and

2006, the number of sweeps done compared to the number of proposals that went out and the ratio.

**Table 1  
Number of Sweeps done and Proposal's that went out**

	2000	2001	2002	2003	2004	2005	2006
Sweeps done	4034	5649	4567	4400	3868	3697	3144
Proposals that went out	606	842	872	810	1080	1091	994
Proposals to # of Sweeps	1/6.65	1/6.71	1/5.24	1/5.43	1/3.58	1/3.39	1/3.16

The number of proposals in relation to the number of sweeps has gone up through the years. That is in direct proportion to getting Blackburn's sweeps to consistently use the camera on every sweep. Bill Hessel of Chimney Doctors in Milwaukee, Wisconsin, noted that the average annual income from relines before he started video inspecting every chimney was \$150,000 to \$200,000 per year. When he started scanning every single flue his sales from relines and masonry work found using the video inspection system jumped up to \$500,000 to \$600,000 per year. (Interview)

According to Mr. Blackburn, in 2006 his company did \$934,000 in sweeps and then did an additional \$503,000 in liners. In other words Blackburn's did an additional 54% of business simply from video inspecting every chimney they could possibly scan and finding repairs that in most cases could not be seen looking up or down a chimney.

For instance, Magic Sweep finds 1 reline or repair for every 10 sweeps it does, Clean Sweeps of Michigan finds 1 reline or repair for every 5 sweeps they do and Blackburn's finds 1 reline or repair for every 3 sweeps they do. Cliff Slagle, owner of Clean Sweeps of Michigan says that "when his sweeps are using the "Chim Scan" regularly the "Chim Scan" doubles the income he brings in from reline work they do." What's the difference? (Interview)

As the public gets educated on the importance of a structurally sound flue lining, the more it will make the correct decision to have the chimney repaired. Realtors recommend chimney sweeps who use video inspection systems. How do I know this? Blackburn's is known for using a video inspection system.

## **Conclusion**

Four out of the five-sweep company owner's I talked with agreed with my original assertion that their revenue and profits definitely increased with regular use of the video inspection system. Sweep companies that use the video inspection equipment to inspect and document their findings will find that their revenue and profit level will continue to climb.

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