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CURRENT PROJECTS OF THE AIR CONTROL DIVISION COMMITTEES

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This paper is an update of the projects and accomplishments several of the committees under the Air Control Division of AMCA have been and currently are working on. These projects have been accomplished in many face to face meetings, phone conferences, and emails. These committee members put aside the considerations and needs of their own company and produce standards and programs that are beneficial for the industry and society as a whole. At the end of the day, as a reward for all of this hard work, they are left with a feeling that they have done something that will be used by our industry and can leave a mark on our world. The items below are only part of the items the committees get involved with. In order to plan and know where your company and the industry are headed, getting involved with these types of committees can assist in your company's success.

1) Acoustical Louvers Testing and CRP

AMCA 511 (Certified Ratings Program – Product Rating Manual for Air Control Devices) began its 5 year review back in June of 2005. The review and AMCA approval process took until June of 2007 to be completed. In this time period, the committee normally met quarterly to review and finalize assignments along with several months of AMCA ballots being sent out to different divisions. The returned comments had to be addressed by the committee. This standard was reformatted due to many sections being taken out from the formation of AMCA 11 (Certified Ratings Program Operating Manual). Many sections and examples were also updated during this time. One new product, Acoustical Louvers section 14, was added to the program at this time. It was during this time that the lab would set up to test acoustical louvers per ASTM E90. The committee tested a couple of acoustical louver, sizes 48"w x 48"h and 48"w x 72"h, to see what the sound reduction difference would be. The reduction of sound between the samples was not that large in most frequencies. Therefore a sample size of 48"w x 48"h was chosen. This same test sample could also be used for the required pressure drop test and optional water penetration test.

The transmission loss test consists of a louver placed in a wall between two sound reverberant rooms. A known sound source is produced in one room with a receiver in the other to measure the noise allowed to pass through the louver. The 2nd through the 7th octave bands are tested and recorded per ASTM E90. The published ratings are the Transmission Loss noise reduction of the 2nd through the 7th octave bands with 6 db added to the transmission loss for the free field noise reduction. The 6 db is representative of the noise that would be lost if tested into an open area, not in the sound room of a laboratory. The decay (echo) and flanking noise are also measured in the room and added to the noise reduction. Also published is the pressure drop or air performance of the louver using figure 5.4 or 5.5 of AMCA Standard 500-L. This is a statement of the maximum pressure drop for a specified airflow rate. Free Area charts of the sizes covered are also be published. As a reminder the free area of these louvers normally fall in the 20-30% range. So they have larges amounts of airflow restrictions in them.

2) Gravity Ventilator Pressure Drop Test and CRP

Since late 2005, the AMCA 511 committee has been kicking around how is the best way to certify gravity ventilators for pressure drop. Many suggestions were debated over

like: testing one single section size, testing a set of 4-5 specific sizes, testing a maximum, minimum, and mid-range size, trying to test sizes based on proportionality. About the only thing agreed on early was the testing standard needed to be Figure 5.4 and 5.5 of AMCA Standard 500-L. As you may know gravity ventilators have many dimensions on them that can varied from manufacturer to manufacturer and even model to model. You have the throat size, the outer hood size, the height of the hood, the proportional ratio size of the hood size to the throat size, the height of the throat, types of screens and the structural members in the hood. All of these can vary from manufacturer to manufacturer and within each particular model. Due to the various ways gravity ventilators are built, testing parameters were found to be hard to agree on and keep the test results in an 'apples to apples' comparison. After many months of debating, it was finally agreed to test a given range of throat sizes. These sizes are 12"x12", 18"x18", 24"x24", 30"x30", 36"x36", and 48"x48" for rectangular shaped ventilators. Round, mushroom shaped ventilators the minimum and maximum size would be tested, as well as a midway size between the min and max. It was also agreed to test the ventilators with the screens attached due to the added pressure drop of the screens and additional hardware required to hold them. The ventilators certified will be a range from the smallest to the largest size tested. Sizes above and below these will not be certified. Published ratings will indicate intake and/or exhaust mode, type of screen used, and the pressure drop verses for a specific airflow rate. Section 15 of AMCA 511 was added for Gravity Ventilator certification back in September of 2007.

3) <u>Spiral Duct Test and CRP</u>

AMCA has again broadened its scope of products covered by the CRP (Certified Ratings Program). Spiral Duct certification was added to AMCA 511ack in September of 2007. The testing currently only offers certification of the straight side seam leakage (straight pipe only) of variously duct gauges per the ANSI/ASRAHE/SMACNA Standard 126-2000.

The test sample is a 10 foot long section of spiral pipe that is 24 inches in diameter. The ends are capped and sealed by the manufacturer with barb fittings in them. The tube is then pressurized to 15" w.g. The leakage is then measured by the required airflow to keep the test sample at 15" w.g. The manufacturer supplies a sample of each gage they want to certify. The data presented in the manufacturer's literature will be converted to cfm per 100 square feet of duct wall surface area. Currently it is anticipated that only galvanized duct will be used in the test samples, but others may follow in the future. Section 16 of AMCA 511 was added for Spiral Duct certification back in September of 2007.

4) <u>Thermal Damper Standard and CRP</u>

This AMCA committee was formed back in July of 2007. The scope of the committee was to write a standard to test the performance of thermally insulated dampers. An investigation to see if there were any standards already written for these dampers was the initial step. They found a couple documents that were written for the European market. These documents would require some modification in order to meet the objectives. One problem with existing test is they only involve the thermal transfer using heated air, not cool air. Also many of the tests do not include a pressurized chamber. Most of the tests out there are for windows and measure just the heat transfer. It is thought that most of the Thermal Dampers are being used in colder climates to keep out

the frigid winter air. With the coldness in mind, it is assumed blade and jamb seals used may not have the flexibility to seal up as well as warm seals thus not be as efficient at these low temperatures as they would be in elevated temperatures such as 100°F to 200°F.

The test currently being most considered involves placing a damper in the side of a test chamber, box like shape. The chamber is then pressured and maintained during the test. The chamber contains a heating source. Once the temperature in the chamber becomes stable at a specific temperature, the power consumption to the heat source is measured. This power can then be subtracted from a test with a fully insulated blank-off panel and converted to a thermal transfer rate. This will cover dampers placed in air conditioned openings during the heated summer months. The issue concerning dampers sealing in cold (-40°F to -80°F) conditions needs to be addressed. The committee is continuing to work towards a solution to finding a measurable cold temperature power source and have made trips to several other labs to find out what maybe available. Once the standard is written and approved, then AMCA will address adding Thermal Dampers to the scope of its AMCA 511 the CRP (Certified Ratings Program).

5) <u>Louver Missile Impact (AMCA 540)</u>

The 2006 international Building Code was revised to include the following code: 1609.1.2.1 Louvers. Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet of grade shall meet requirements of an approved impact-resisting standard or the Large Missile Test of ASTM E-1996. This code requirement is for coastal areas in the wind zone of 90 mph or greater. So in early 2005, the AMCA Louver Engineering Committee established a task group to investigate the development of such a standard. The task group discussed issues related to the missile impact testing of ASTM E-1996. Many of the members had preformed testing according to ASTM E 1996-04 and E 1886-05 as part of their Miami-Dade County approval process. This type of testing involves shooting an eight foot 2x4 (lumber) having a weight of approximate 9 lbs at the louver. The speed at which the 2x4 is projected depends on the type of facility you are installing the louver into. An Essential Facility (such as hospitals, health care facilities, jails, rescue and police stations, etc) will require the 2x4 to impact the louver at 80 fps (~ 55 mph). A Basic Protection (anything not listed as an Essential Facility) listing would project the 2x4 at the louver at a rate of 50 fps (~34 mph). Through many discussions regarding the missile impact, it was determined that the ASTM E-1996 did not totally address all of the critical areas associated with the large missile impact. The narrowest louver sample was discussed as being the hardest sample to pass. This is because it has the most rigid blade. The wider the blade, the more flexibility it has thus absorbing the shock of the impact of the 2x4. The blade to jamb connection is the most acceptable to shearing off in a large missile impact test.

A single section sample is impacted at 3 locations, top right corner, center of louver, and bottom left corner. It was also decided that you must test both the largest single section sample you intend to label without blade supports and the narrowest sample you intend to label. There are some other minimum requirements such as a minimum height of 36” and it must also have at least 5 blades in it. This is to allow multiple impacts on the same louver without having an impact on the same blade of a sample.

Multiple section louvers must also be tested to be eligible for labeling. A minimum of 2 sections assembled together, of the largest size and without blade supports must be tested. Each section of the multi-sections will be impacted like the single section previously mentioned. In addition the final impact will be at the center of the mullion.

The pass/fail criteria for this standard is the louver components must remain attached to the adjacent parts or components. Also there is to be no horizontally projected opening that a 3" sphere can pass through. This standard is currently in the submittal stages for an ANSI standard.

6) <u>High Velocity Wind Driven Rain (AMCA 550)</u>

This standard was established on a request from the Louver Engineering Committee to develop a standard similar to the Miami-Dade protocol TSA-100. The TSA-100 is a test standard used to test roofing systems, normally on a 20° slope. As many of you know, there is a big difference between a roof and a louver. The roof is designed to be sealed and keep water and air out. The louver is designed to keep most of the water out but let air in. Standard 550 establishes realistic performance conditions that allow manageable amounts of water infiltration in a building under high velocity wind and rain conditions. The test consists of a 48"x48" louver sample installed into a concrete block wall, 8' wide by approximately 10' tall. Behind the louver is a collection area, a couple of feet deep that collects any water penetrating through the louver and diverts the wind through an opening behind the louver. In front (up stream) of the louver, approximately 11 feet, is a wind generator capable of producing a constant wind velocity of 110 mph. Also approximately 10 feet in front of the louver is a sprinkler pipe system capable of producing 8.8 inches per hour rain fall over the test area. Before the test sample is installed, the 4' x 4' opening is blocked off and the wind generator is calibrated at wind speeds of 35, 70, 90, and 110 mph. Next the water supply system is calibrated for the 8.8 inches of rain per hour in the 35 and 70 mph wind speed. Many points of calibration are required for confirmation of both wind speed and water distribution. Next the louver sample is placed in the test framing and installed per the manufacturer's installation instructions. In this test the airflow allowed through the louver is only what the wind generator pushes through it. There is not an external (or you could say internal) source that draws air through the louver during the test. The wind is then turned on and allowed to stabilize. Water is then added to the test. The water and wind speed are continued per time and wind speed per the table shown below.

Interval Number	Wind Speed m/s (mph)	Time (Min.)	Water Spray
1	15.65 (35)	15	On
2	0	5	Off
3	31.3 (70)	15	On
4	0	5	Off
5	40.2 (90)	15	On
6	0	5	Off
7	49.2 (110)	5	On
8	0	5	Off

This standard has a pass/fail criteria, as also done in AMCA 550. The louver must refrain from allowing more than 1% of the water applied to pass through it to achieve a

listing. This standard also calls for a 48x48 sample to be run through AMCA Wind Driven Rain test at 50 mph and 8" rain per hour rate. The test results from the AMCA Wind Driven Rain test will give a base line for future retest samples to be compared for recertification.

7) AMCA label Listing Program (AMCA 512)

As previously mentioned in the Large Missile Impact section above, the 2006 International Building Code was revised to include louvers protecting intake and exhaust ventilation ducts in the wind zone areas of 90 mph meet requirements of an approved impact-resisting standard or the Large Missile Test of ASTM E-1996. Besides developing the AMCA 540 and AMCA 550 standards previously mentioned, AMCA contacted the IBC to see if the AMCA CRP (Certified Ratings Program) program could be written into the codes as an acceptable provider. The IBC stated that the CRP program would not meet their requirements because you have to be affiliated with AMCA (a member) to participate. In order for the IBC to adopt the testing requirements, AMCA will need a labeling verification service such as one in which Underwriters Laboratories currently provides. Also the IBC will not accept a program without a follow-up or quality assurance system in place. Therefore AMCA formed a committee to develop a label listing program for products that is open to all. The products after certification would be retested every 3 years for its follow up service and have a written in-house quality assurance program.

The AMCA Standard 540 and Standard 550 once fully developed and approved as an ANSI Standard, will be submitted to the IBC for inclusion as approved test standards. The AMCA Label Listing program is currently being presented to the IBC for inclusion into the next publication as an acceptable provider based on the Label Listing Program. The Label Listing Program will be handled totally separate from the CRP program. This program will be open to all companies, AMCA members or Non-AMCA members. This program will initially be for verification of passing criteria of AMCA Standard 540 or AMCA Standard 550. It is possible for other standards to be added to the scope of this Listing Program in the future.

The difference in the AMCA CRP program and the AMCA Listing program is the AMCA Listing program will include specialized labels that will only be purchased from AMCA and can only be applied to the products tested and listed in the program. The approved manufacturers will be held responsible for the proper application of these labels. If misuse or misapplication of these labels is found, AMCA may revoke all labels and privileges under this program. These labels will be documented by the manufacturer as to what louvers they are applied. As I said earlier, this program is open to all companies. Private labeling is available. The AMCA CRP program is only available to AMCA members and will not cover AMCA Standards 540 and 550.

8) Sun Shade Devices Paper (AMCA 530)

Let me begin with giving you a little history. Several years ago AMCA started a committee (AMCA 530 Committee) to study how AMCA can develop and produce literature using sun shades. As many of you know sun shades are basically devices such as louvers, screens, glazing, partitions, dampers, etc mounted to the exterior of a building to redirect the sunlight from directly hitting the windows. Basically they reduce the solar radiation through the windows, thus causing lower energy cost and personal discomfort. With the current cost of oil and natural gas sky rocketing today, building

owners are very much concerned on operating cost. Also with the energy cost increasing at record levels and the influx of LEED and Green Building, we should expect to see more sun shades being used in North America as is currently done in European countries where energy cost is much higher. The committee first looked at developing a test standard that could be used to determine the effectiveness of the sun shade and in turn be used by the architects and engineers to design the building. We did some testing through Architectural Testing, Inc using a test procedure (ATI41-101) through the National Fenestration Ratings Council. We sent them a couple of 60"w x 48" high louvers to mount horizontally over a 48"x48" window (airfoil blade and J-blade). In doing this preliminary testing we found there to be many variables and restrictions to doing this type of testing. This testing actually measures the solar gain through a window. Some of the problems encountered with this procedure were, the test had to be conducted on clear days. The recommended test dates ranged from mid-April to mid-August due to ATI's location and the suns altitude above the horizon. Each test would take a full day to run with a 1 hour set up. With this in mind, the ability to run test could be limited to a few weeks a year depending on weather. The one sample that was tested reduced solar gain of about 40% with the sun as low as 20° altitude. As you know the lower the sun is to the horizon, the more direct the solar rays can directly hit the window, so they are not always effective. Sun shades are most effect during the middle of the day with the right orientation of the building to the travel of the sun. With the restrictions of days per year we can test, the committee began to explore what other avenues are available. We found a couple of very in-depth and intense programs out there. One is from the Department of Energy funded largely by our tax dollars. It is a program that requires many variables to be inputted to come up with a cost of energy to operate the building. It can be found at www.doe2.com. Berkeley Labs also has a program at www.lbl.gov that assist in coming up with energy cost to operate a building.

About the same time as locating these elaborate programs currently developed, the committee ran across an architect/college professor that has done some extensive work in this area and published the book 'Window systems for High-Performance Buildings'. The book covers window and dressings such as window shades, sun shades (horizontal and vertical), window glazing, building orientation, glare, day lighting provided, and energy usage during peak demand, building geographic locations, etc. AMCA in turn contacted Mr. John Carmody, author of the book, to assist us in preparing a publication written for the products we build. It was proposed to develop an illustrated publication about the building operation cost savings that external shading devices produce with commercial window data. We would use the existing data which is located in his book and would include a wider range of shading options for 7 US cities. The AMCA members would then be able to take this publication and give it our customers, architects, engineers, building owners, etc to help promote our products. We would then wait a year to see what kind of interest or additional request was sparked from the publication, External Shading Devices in Commercial Buildings. With the committee's guidance it was completed in August of 2006 by John Carmody. It can currently be purchased electronically from AMCA's website or in paperback from AMCA.

After the year ingestion period, the committee got back together to see what comments had been produced from the original publication. We then discussed if Phase 2 needed to be started. Phase 2 is a more expensive individualized program that would match manufacturer's products in a more detailed simulation program. It was thought that a small program could be written showing performance of difference shading. The

data would use a general shape sun shade and not actual manufacturer's shapes. The committee discussed the next stage of this project in August of 2007. It was decided that a Users Manual for Sun Shades would be a better, more cost efficient tool to work with at this time. Thus this committee asked that an AMCA develop a users manual type publication on Sun Shades, which brings us to our next topic.

9) Developing a User Manual for Sun Shades (AMCA 504)

The AMCA 504 Sun Control Devices Committee was formed with volunteers from the industry in September of 2007. This committee's assignment is to develop a users guide for sun shades to match other user guides AMCA currently has such as 501 (Louvers), 502 (Air Control Dampers), and 503 (Fire, Smoke, and Ceiling Dampers). The scope of this publication is to provide information and important points to be considered when specifying and detailing installations of sun shades for aesthetics and energy cost saving. Items covered in the publication are definitions, applications, benefits, designs, selection, accessories, finishes, and installations. Some of the advantages to using sun shades are building cost savings by reducing direct solar gain, lower cost window glazing, reduced peak electrical demand, increased visibility to the outside, and reduction of glade to the inside. The requirement for interior shades or dark window tinting can also be reduced or eliminated. This publication is currently a 'work in progress' and hopes to be completed by the end of 2008. Once this tool is completed and had time to be used in the field, then at the appropriate time the committee will decided if it is time to pursue phase 2 of the Sun Shades proposal previously mentioned.

10) Actuator Torque Testing

As many of you may know, a committee was formed several years ago. Its members include actuator manufacturers and damper manufacturers. This committee wrote AMCA Standard 520, Laboratory Methods of Testing Actuators. It was determined that in the past, our industry had received some bad publicity with actuators failing and some being recalled. This standard was written with the actuator manufacturers to minimize this problem from ever happening in the future and prevent any others in the future. As you may know, AMCA Standard 520 covers testing for: Long Term Holding (6+ months), Operational Life Cycling, Ambient and Elevated Temperature Performance, Sound Level, and Production Test. The Damper Engineering committee has written and proposed the Long Term Holding test to be included into UL 555S, which I will briefly mention later. The damper manufacturers have asked the actuator manufacturers to voluntarily do some of this AMCA 520 testing in house to insure we continue to receive a quality product. There is one area of concern that the damper manufacturers do not have a history of and would like to develop. We are concerned with the actual torque output of the actuator. Each actuator is built and labeled with its own rated torque, open and closing. This rated torque has some kind of safety factor built into it which is different for each manufacturer. The actuator is supplied to the damper and louver industry for use to operate our products. We (damper and louver industry) would like to keep confidence that we will continue to get the same quality products we initially rated our current products with. So a committee has been formed which will set-up (to begin with) a stall torque test standard for these actuators. The test will involve various degrees of stall in both the opening and closing positions. The committee has just begun meeting to discuss the approach they will take. The committee hopes to be able to set

up a program where damper manufacturers send in random actuators from stock (when requested by AMCA). These actuators will be marked A, B, C, etc. The actuators will be tested for stall torque. The results will then be distributed back to the participating companies. By doing this, the participating damper manufacturers will receive a report back showing how the samples of a particular actuator preformed. This will generate a history of the actuators performance and also catch any problems early that may arise in any production change to the actuator. This is a newly formed committee that has not fully developed the scope of the program yet. Other test may be added to it as time goes on and is found to be needed.

11) Working with UL in Their Standards:

The DEC (Damper Engineering Committee) stays in constant contact with Underwriters Laboratories and other bodies that regulate the industry in regards to changes, additions, and deletions to their current standards. The next several items are all proposals that the DEC has presented to UL's STP (Standards Technical Panel) for changes to the current standard.

a) Actuator Long term Holding Test in UL 555S

The DEC has developed a proposal for UL 555S (Smoke Damper Test Standard) to include UL testing of actuators for used on smoke control dampers. This proposal uses the test method described in AMCA Standard 520, Long Term Holding test. In general, the proposal takes a sample set of actuators (24 or 32) and powers them open for a period of 6 months without any interruption. At the end of 6 months the power is then removed and the actuators must return to there resting position without any external force acting on them.

This proposal has been listed on UL website and made available for public comment. I believe all comments have been address at this time. It is currently waiting on the UL's 555S STP (Standards Technical Panel) to meet and discuss its adoption.

b) Dynamic Rated Ceiling Dampers

Ceiling dampers have always been UL listed for use in a static type system. A static type system is one in which the fans are shut down in the event of a fire alarm. There are situations in the field where a ceiling damper is needed to be installed in an opening and there is no product available per the UL 555C Standard to meet its needs. The DEC sat down with UL to discuss a need for a product that is not currently listed as being under the scope of UL 555C or UL 263 (both test for ceiling radiation dampers). We discussed with UL a few particular cases that happen everyday in which we (damper manufacturers) cannot supply the industry with a product for this wide spread application. An example of such a situation is in an apartment, hotel, or condo construction where a heating and air unit is placed in a closet like construction. The unit supplies air through the rated ceiling above, across the attic space, and back into individual rooms throughout the working or living space. In this case the heating/AC unit is not required by most codes to shut down in the event of a smoke alarm or fire alarm (which many do not have a heat sensing alarm). So the unit will continue to run during a fire until the fan motor overload is kicked out. A couple of problems with the unit continuing to run are the dampers may or may not close under the airflow and the unit can blow

smoke from its location into the other rooms. Some ceiling dampers are not designed to close under airflow.

The damper committee started a task group to develop a new listing for a dynamic rated ceiling damper. The test as proposed will be to install the ceiling damper horizontally in a heated operations test as described in AMCA 500-D. The test will be run at 1" static pressure and airflows of 500, 1000, 1500, etc fpm. You will then label your damper as you would your currently classified Dynamic Fire Dampers. A proposal has been drafted with this procedure in mind to be inserted into UL 555C. Like the Long Term Holding test for Actuators, It is currently waiting on the UL's 555C STP (Standards Technical Panel) to meet and discuss its adoption. UL will then need to create a category for it or modify their definition for the current Ceiling Damper.

c) Structural Integrity Alternate proposal

Here is a little bit of history to explain why this proposal was drafted. Back in 2002, when the industry had to retest almost all of its products dealing in smoke control, UL ran into a problem. The current UL 555S Standard as written, in order to get multi-section dampers approved, you have to physically test the multi-section dampers at 2400 fpm and 4.5"sp at elevated temperature. AMCA had set up their lab to handle a maximum size damper of 36"w x 48"h (12 sq. ft. per UL 555S). As you know there are openings in fire and smoke barriers larger than 36"x48". Back then and even now, there are only a couple of private labs that can do a 4 section damper at 2400 fpm at 4.5" wg sp. But none of them can run the heated air portion of the test on that size of multi-section damper, 72"w x 96"h or larger. So UL agreed to let the industry do some of the testing with an agreement that they can withdraw the listings in the future if the damper industry does not come up with an additional test that represents the standard. UL was not sure how a large multi-section damper would react or leak under the pressure and airflow. UL sent out a letter that stated you could jackshaft sections together to operate as one, for a multi-section damper approval. You must still include one actuator per section as it was approved on a single section. With this in mind and many companies did the torque compensation test (that will be mentioned later).

The DEC (Damper Engineering Committee) has drafted a proposal for UL 555S. This proposal utilizes the high success rate of the torque compensation test run on multi-section damper as a history of a quality product. It is also written around lab capabilities (like AMCA's) available to our industry, not just specific companies own in-house labs. The torque compensation test success rate proved that dampers not connected together but that are powered at the same time with similar actuators will operate properly. One concern left was "how will the large section dampers operate at the higher flows and pressures?, will the frames be strong enough in the center of the sections to maintain the leakage class achieved on a single section?"

The Structural Integrity test is for damper/actuator assemblies that take longer than 2 seconds to close. We know from our testing experience that when a damper has a controlled closure rate (greater than 2 second) the forces exerted on the damper by air velocity momentum are much less than instantaneous (slam shut). Our proposal includes an additional test to be done to allow non-linkage connected multi-section high by wide dampers. This test would consist of testing a

full size multi-section unit (2 x 2 section minimum) at a reduced velocity rate that is compensated by an increased velocity pressure to the current testing pressure. The unit will initially be cycled, temperature degradation, cycled under a reduced airflow, and leakage tested. The leakage is then subjected to the same calculations as done in the correlation method on ambient tested single sections. In a nutshell, it is an ambient correlation test on a full size multi-section sample.

d) Existing UL Practices Not Currently Listing in the Standards.

The DEC has looked back over the testing UL has allowed over the last several years for many of the products we manufacturer. In many circumstances UL allowed testing not listed in the UL standards to be done to qualify our products. Also in that time period, UL changed the way it handles its standards. UL developed the STP (Standards Technical Panel) to make changes, modifications, and drafts to its standards. The STP is made up of End Users, Manufacturers, AHJs, Testing Labs, Specifiers, etc. They try to achieve a balance of these individuals. With this new process UL is no longer able to change their documents without the panel's approval. UL has only one vote on this panel. The documents now have to be proposed via drafts submitted to the STP, and then the proposals are put out for public comment. Once the public comments have been resolved with the presenter of the proposal, the STP then discusses and votes on the adoption of the proposal.

- **Out of Wall Testing**
  This test involves the hourly fire and hose stream testing of fire dampers installed outside the plane of the fire wall, partition, barrier, or floor. The duct drop test is also a requirement of this product.

- **Torque Compensation Testing for Large Dampers**
  As previously mentioned in the Structural Integrity Test, UL has allowed the industry to measure the torque of a large single section damper under ambient air and heated air. This data can then be used to calculate how much additional torque is required, percentage wise, to test dampers at ambient air over 12 square feet in size, single or multi-section size.

- **Corridor Damper Testing**
  The DEC is currently working with UL to determine what needs to be done to have Corridor or Tunnel Dampers drafted into the standards. UL has them listed in their directories, but not mentioned in the standards. They are only mentioned in their EMME Guide Information of the UL Fire Resistance Directory. There is tells you what it is, but when you go to the UL 555 and UL 555S standards, you will not find any wording on Corridor or Tunnel Dampers.

12) <u>Updated Application Manuals:</u>

AMCA 501 (Application Manual for Air Louvers) and AMCA 503 (Fire, Ceiling {Radiation}, Smoke and Fire/Smoke Dampers Application Manual) are both currently under their 5 year review. Each manual has a committee of volunteers from the AMCA membership working on them so when completed they are an Up-to-Date manual that

can be used by designers, manufacturers, AHJ's, and building owners to understand the products we build and assist them in making the best decision they can.

Conclusion: I have discussed many committees currently active through AMCA. These committees are working towards the betterment of our industry and helping to improve our everyday working environment. The AMCA committees are open to participation from any AMCA member company and invite new participation from AMCA companies. If you or someone from your companies has an interest in joining one of the committees mentioned in any of these presentations, feel free to contact AMCA and they will assist you in getting involved.