

Welcome Contractor

We at Architect's Security Group, Inc. are pleased to learn that you have been selected as the security system installer for a project which we designed and specified. It is very important that you read this information in its entirety and follow the advice we are offering. I am taking the time to offer this advice to you to assure that this project is successful for my client and profitable to you. Be sure to fill out the reply sheet at the end of this document and mail, email or fax it to us immediately. We will not authorize commencement of work or sign off on any payment request until we receive and process this form.

You are required to provide certain submittals at various phases of this project. It has been my experience that without this reminder, many contractors miss a submittal or fail to comply with one of the important provisions of the specification resulting in the withholding of progress or final payments. Please regard this memorandum as our offer of help to you so that this does not happen to you. Be aware that we are only a phone call away and we do not charge you for advice or phone assistance. We are on the same team as you and expect that you will use us as a resource to get the job done right--the first time.

It is important that you understand that:

- We represent the owner, and to an extent, his insurer, and we will not, under any circumstance, sign off on a project unless all of the requirements are met. We are security engineers and we understand the technologies that we specify. We expect that you will assign people to your installation staff for this project who are also highly qualified.
- An independent insurance inspector may conduct an inspection of your work at the end of the job and you could be drawn into expensive litigation or corrections if you short cut the specification and do not do the work properly. This happens one or two jobs per year and is most unfortunate because it is extremely costly to the contractor if the building is not permitted to be open as a result.
- We will review, in detail, and sign off on, all submittals, including shop drawings and as-built drawings, training plans, manuals, etc. The specification calls for you to pay for re-reviews if your submittal is not adequate as specified. You pay our hourly rate (typically a minimum of \$140 per hour), plus expenses for Federal Expressing multiple sets of the submittal back and forth during the re-review process. You do not pay for our initial reviews so please try to get it right so you don't have unexpected expenses. The terms of this process are in the spec.
- A final acceptance test will be conducted at the end of this project to assure compliance with the spec. That test will be extensive and detailed. And most important to you, the specification calls for you to pay for any retesting that occurs if your work does not pass the test. Our daily rate of at least \$1500 per

day (including a minimum of two days of travel time and one day on site per person), plus full expenses for one or more of our staff to fly in and re-test. This will be withheld from the final payment due you, to cover our fees and expenses for every re-test. This, too, is in the spec.

Hopefully I have your attention. And hopefully you will appreciate that with our help, this job will go smoothly and your work will be accepted and you will find this job to be profitable and one you can be proud of. A cultural institution is, indeed, a glamour client and one you can use as a reference many times in the future.

You were directed to this document on our website at a non-published location. At the bottom of this page you will find contact information so you can reach us with your questions. You may call us for advice from 10:00 am EST to 4:00 pm EST weekdays. Ask for any associate working on this project. Our phone advice is intended to be informal and unofficial. Let's make this job easy for all of us by cutting out some of the UNNECESSARY paperwork. However, it is always essential to file Requests for Information (RFI's) through official channels when you have major questions or request changes. Consult the General Contractor or Architect if you have questions about this process. All changes or variances from the approved shop drawings or specification at the end of the project MUST be documented in writing and be pre-approved. But day to day questions and clarifications can be handled by phone saving us all a lot of time.

It will be very useful to you to have a digital copy of both the spec and the CAD files for the work you are doing which we specified. A copy of the Specification can be provided in Adobe Acrobat (.PDF) format if you do not have AutoCAD.

You also need a copy of the Device Schedules. If they are not part of the drawings (as they are for the vast majority of all projects), they can be sent to you when you request a digital version of the documents. The schedules are one of the most critical parts of the specification as they tell you exactly what make and model component was specified and any installation details such as mounting heights that are not shown on the drawings or stated in the spec. The schedules are a component of the Specification but often appear on the drawings for your convenience. If, as occasionally happens, you did not receive the Schedules from the General Contractor when you bid, I strongly suggest that you consult them now as the Schedules WILL effect how you do this work and the products you provide.

- An AutoCAD version of the security system bid documents (unless the owner asked specifically that we not provide them for some technical reason in which case you should call us to discuss their availability) can be requested. The drawings are in .dwg format and can be opened only by using AutoCad which is not being provided to you. Consult your drafter about opening these files. We will

provide AutoCAD versions of the bid drawings to expedite your development of Shop Drawings and ultimately As-Built (record) drawings. If you need .dxf files rather than .dwg files, call us first. If you don't know what these files are, be sure to discuss this with whomever is preparing your Shop Drawings for you as they will save days of work for that person.

You can obtain a copy of "The Suggested Guidelines For Museum Security" here. [SuggestedPracticesforMuseumSecurity.pdf](#) While the specification prevails, this document governs the museum industry and you should understand its intent as a MINIMUM standard. Be aware that we may have asked for a higher standard in the spec!.

Shop Drawings

Shop Drawings are defined as the official approved set of drawings prepared by the engineer in the office that instruct the installer in the field on how to do the work. They are the drawings from which the installer works in installing and programming the system. Shop Drawings use the consultant's Bid Drawings as a guide, but the Shop Drawings provide engineering details that are not, or could not, be shown on the Bid Drawings.

Shop Drawings show us, the consultant, that you understand our design intent, that you have carefully thought out the project in advance and are not "winging it", and that you know what you are doing. They show us what type and size wire you are using and how you intend to run it. We can see whether you are meeting the manufacturer's requirements and are wiring the system the way we specified. And we can tell whether you put any thought into resolving or coordinating potentially problematic issues such as issues involving historic fabric of the building, hardware coordination, code issues, etc. But first and foremost, any minimally competent installer can install a job properly if the Shop Drawings are adequate. And we can help you catch small problems before they become big problems if you provide enough detail.

Shop drawings can be prepared using the CAD files we provide to you. But DO NOT give us back our Bid Drawings as shop drawings or they will be rejected. It is your responsibility to transfer your title block to the building background drawings, overlay our devices, if you wish, onto the backgrounds, and modify our drawings to show exactly how the work will be performed including conduit fill, power calculations, etc.

Where we provide control room elevations, prepare official control room elevations showing exactly how the console will be built including outlet locations, etc. Someone in your company has to install this job exactly according to your Shop Drawings so be complete and precise.

Note that our drawings probably include a sheet called Attachment "A". This sheet shows you the exact format we expect to see your Shop Drawings and As-Built Drawings in. Follow this example and you will have little difficulty in meeting our needs. Also note that on our sheets that show device and door details we have included a checkbox in the corner. If you use our base drawings as your Shop Drawings and you do not see the need to modify our drawings to perform the work differently, all you need to do is check the box accepting our design, or if you do find the need to modify these drawings and insert your own similar drawing, indicate that you have modified our drawings. This cuts the review time drastically and we appreciate this very much. From your perspective, should your drawings fail the review and have to be re-reviewed at your own expense you will appreciate the fact that, at \$140 per hour, you are saving us time!

Read the spec with regard to who is providing conduit. If you are providing conduit, you may have the latitude of providing it differently from how it is shown on our drawings. But if it is being provided for you, you will need to show it just as it is specified on the bid drawings or coordinate changes with the conduit provided. Be sure to submit the Shop Drawings for review in the format and quantities specified. This includes providing hard copies (blueprints), as specified, as well as copies on CD-ROM in AutoCad in the specified software release, or other acceptable electronic format specified.

As-Built Drawings

At the end of the job and before we will sign off on the work, you will be required to modify the approved shop drawings to show "as built" conditions. When we conduct one of several on-site inspections, one thing we will ask to see is a set of shop drawings your installer is using to do his work. We will check to verify that he is marking up those shop drawings showing changes. If he is not doing this, we may stop work and ask that a new contractor replace your firm. I cannot stress enough that we are paying a premium for adequate record drawings. Your company and other bidders almost certainly included a premium for the special requirements that we made for as-built drawings in the specification. We demand proper as-built drawings because having them will reduce our future service costs each and every year for the life of the system. You cannot do proper As Built Drawings without good Shop Drawings and you cannot do them without marking up an official set of Shop Drawings on a daily basis as changes are actually made in the field. Do not attempt to remember all of the as built conditions at the end of the job and document them at that time.

At the end of the job we will inspect the system and accept or reject it. We will require that As-Built Drawings be provided at the time of this test. We are aware that there will still be some modifications after the acceptance test and that the set of As-Built drawings you provide us for the acceptance test may have to be modified into a final version. But you will be expected to have As-Built drawings

present at the acceptance test and we will check them against as built conditions for accuracy.

Since we will be reviewing the very final version of the As-Built Drawings at the very end of the project, you need only provide one set at the acceptance test. Be sure to plan ahead for this end-of-project workload.

Warranty Period and Beneficial Use

Finally, we are aware that the specification clearly defines the beginning of the warranty period as beginning only when final As-Built Drawings are approved and when other obligations are met. It is to your advantage to get this job done. And, as they say, "It isn't done 'till the paperwork is done".

Note that the warranty does not begin upon beneficial use. By bidding this specification, you agreed to the warranty terms. Be sure that at the end of this project you fully understand these requirements. I'm certain that we paid a premium for this warranty and we will require that these terms be met.

Important Advice For You

We have designed well over 250 security systems for facilities of this type. In about half the jobs, we find out through conversations with the installation team that one or more of the following problems exist:

- The installers never were given a copy of the specification and/or shop drawings to work from. As a result, many, if not most, of the provisions of the spec that were intended to assure quality control or improved security were not met and had to be done over at the contractor's expense. If at any time we visit the site and find that a site installation foreman or supervisor from your firm has never been given a set of shop drawings to work from or has not been given a set of specifications to reference, we will immediately request that work stop and payment be withheld. We consider it an error and omission on your part to perform work on a project of this complexity and this cost to us and not provide these basic instructions to your workers on site. If there is any one quality control that is to be considered paramount, this is the one.
- The installers did not have proper equipment such as glass break test devices on site during installation. Shaking a ring of keys is not the industry standard method of testing detectors--or maybe it is and we are just fussy. Bring such test tools to the final acceptance test.
- Unauthorized changes or substitutions were made. These usually occurred in

the following areas: substitutions of detector models, changes in the alarm grouping or shunting plan, changes in the mounting locations for devices, and changes in how the system is wired from the way it was supposed to be wired according to the shop drawings. And let me make one more point. We have specified a specific conduit size and quantity. Sometimes we have specified far more conduit than is necessary and even conduit that will not be used in your system. In the past, some contractors have brought this to the attention of the General Contractor and agreed to eliminate unneeded conduit and split the savings without telling us. Let me say this. This is a high security project. We have been known to provide conduit and other security infrastructure that is not needed now but will be needed when the first blockbuster exhibition arrives.

As you can see, we have twice as many motion detectors in some galleries than are actually needed. We have even been known to bring in a second alarm company after the primary company completes their work, to install a second complete system for added security. This assures that even the alarm installers can't defeat the entire system. If you have any idea of making changes and not telling us, get over the idea now. We know EXACTLY what we are doing. Similarly, we have tried to conserve space on walls of security closets. Maybe this is to assure that the back-up system that may be installed after your work is done fits. Maybe I'm just fussy. Please do not try to make changes or they will probably come back to haunt you later.

- Improper attention to details and coordination issues resulted in problems. What is the most common problem? I'd say it was when doors are hung and grouted without the advice, input and coordination--if not direct supervision--of the alarm installer, and conduit is not run into the frame of the door for the door contact. This results in a cement-filled door frame where it is impossible to install a concealed contact. The coordination of contacts in doors is YOUR responsibility as per the spec. Talk to the General Contractor NOW about this and tell us as soon as a problem occurs so we can make it someone else's problem. This provision appears in the spec at the specific request of this architect who indicates that he will not accept surface mounted contacts because of poor coordination.

- Lack of participation by the security contractor during installation of conduit. Back boxes that are supposed to be "in the corner" as per the device schedule are "near the corner". Conduit that is supposed to be accessible is eventually covered by ductwork. Conduit that is supposed to be "stubbed down" is not stubbed down. When the conduit is supposed to be finished but is inaccessible, improperly located, inadequately sized, etc., it is the security contractor's problem child because it is your responsibility to coordinate and inspect.

- Lack of understanding of aesthetic requirements. Each detector was selected for both performance and appearance. Consideration is given to details like where to place card readers. Changes that you may consider minor may have a

major impact on the appearance of the building, so get approval for nearly all changes especially detector type, finish colors, and detector and device locations.

On the other hand, while this architectural team is excellent, some architects we have encountered in the past thought primarily of appearance and functionality and security was sometimes a secondary concern. If you are instructed by anyone to make a change, be certain to notify us of that request. Do not mount a detector higher or lower than specified. If we require that it be in the corner, we mean in the corner, not near the corner. It may not swivel far enough if it is not exactly in the corner. But these are details that others do not always think of. We are here to free you up from these issues and to take the heat for you. Call us whenever someone makes a change that is not obviously very minor.

The following are the most common reasons that Shop Drawings and As-Built Drawings are rejected:

- They are submitted piecemeal, that is, we get one mailing with a packet of cut sheets and a week later we get another mailing with drawings. We can't review them like this. We must cross reference to see how changes, or your engineering, impacts each device. Submittals should be made as a complete set.
- When we ask that you show us point charts on how individual alarm inputs are to be wired on the various alarm control panels, this is so we know that you are wiring the job correctly, wiring it for point by point annunciation, if required, and that you are providing an adequate number of alarm control panels. We must know this up front. We are aware that you can "wing it" and probably do the job successfully. But unfortunately, your alarm control panels share wall space or rack space with other building systems, and all of this work, including quantities and space, must be coordinated. We must know now, not later, if additional power is needed for your panels or if power is being provided in the right locations. And we must know power consumption and heat loads. So we will require that the point charts or other similar details that we ask for be provided and be accurate on Shop Drawings.
- Drawings are a hodge-podge of sheet sizes, they are not bound into a set, they are not complete, they lack a symbols list or a chart that defines wire types and sizes, or they do not show adequate detail such as end of line resistors, riser diagrams, software compliance statements, power supplies, etc. Use the example provided in Attachment "A" of the bid drawings and you can't go wrong.
- They are not provided to us in the quantities specified or in the format specified.
- They are not provided in a draftsman-like manner. They should not be marked up with handwritten comments as an afterthought. Make an effort to conform to

the drafting standard of the bid drawings with regard to font and other details. The as-builts that you provide MUST conform and since you will modify the shop drawings to make the as-built drawings, start the job with at least a similar look and feel for all submittals. You should be aware that we are not empowered to reject your shop drawings and charge you for a re-review without the concurrence of the architect. It takes his rejection of your work as well as ours to trigger additional costs to you. If you have any questions about what we will accept, please call us. We are not out to make additional money by rejecting good shop drawings. When we reject submittals, they deserve to be rejected.

First Submittal

It is important that you read the specification to ascertain what is required of you and when the submittal is due. This memorandum defines what we GENERALLY require, but does not alter the specification. This is intended to alert you to look for these, and possibly other, things that must be submitted at the beginning of the job. Note that you should provide the first submittal no more than 30 days after being given the go-ahead to begin your work. If you can't meet this deadline, that's OK. But you must call us and tell us this so that we know you are on top of things. Regardless of what anyone tells you, including the General Contractor, you will NOT be paid for work that occurs BEFORE we approve your Shop Drawings. We simply will not sign off on this work. Do not begin work without shop drawings unless we agree.

Here are some things that may (and probably do) appear in the specification that you bid on that are required in the first submittal:

- Shop Drawings
- Cut sheets for all components/products in the system
- List of substitutions and compliance statement that the substitutions perform as specified in every way. For any substitution, provide a picture of the product or product sample so we can see it. (Note that this does not authorize substitutions in your project. Read the spec about substitutions and pre-qualification of substitutions). This is the procedure only if submittals are welcomed in the spec.
- Some jobs require that information regarding each installer be submitted prior to beginning work so we can do a background check on each of them. If this is the case, work may not be permitted until we complete this lengthy process so don't delay.
- Power calculations so we know that you are providing enough battery power to meet the spec and that the power supplies are properly sized.

- Submit a software compliance statement addressing specifically how the system being submitted, if other than the system specified, will comply with the specifications on a paragraph by paragraph basis.
- Submit a software compliance statement indicating that the manufacturer's latest version of software and the latest version of Windows operating system software acceptable to the access control software manufacturer at the time of acceptance testing will be provided.
- Submit a software license statement and assure the owner that software will be held in escrow and provided in the event the software manufacturer ceases business operations.
- It is almost certain that we specified, but did not receive from you even if you submitted it, a list of all major components in the system that you are installing, (We nearly always ask for this but rarely are provided with it by the architect and are never provided with it by a General Contractor who may have solicited your bid). Please send it to us. Include each detector, contact, switch, alarm control panel, power supply and battery, delay locking hardware, magnetic lock, electric strike, strike release button, computer, printer, camera, multiplexer, VCR, and other component, along with a price that each will be provided to us for during installation and during the first year following acceptance of the system. This is in the spec.
- It is almost certain that we specified, but did not receive from you even if you submitted it, a price for extending the one year full parts and labor warranty specified for one additional year. Note that this is NOT a traditional warranty with exclusions or alterations. This is a one year full parts and labor warranty. Period. If we want to extend it for one year, what is the cost? You were required to submit this number with your bid. Please provide a copy of this now for our official record to avoid confusion later. We will recommend that the customer buy it if the cost is acceptable.
- Details of the phone line needed for your system including a cellular account, if specified. Indicate that you coordinated this issue and that it is being provided. By whom? The objective is to get the ball rolling now so you get what you need at the end of the job when time will be of the essence.
- By this time you should have read the specification with regard to who is providing electric locks, if any, and what the product being provided is. If this is NOT adequate, we need to know this now so substitutions can be made.
- While it is not specified, it is the expectation of the Security Consultant that you will provide to us as part of the first submittal, a job directory of your installation team including the name and phone number of any sub-contractors being used and the name, address, phone, fax and email for your company's project

manager. This will make your job go much more smoothly as we can contact the correct person to resolve issues that arise.

- Above all, if you see any problem with the conduit and power being provided for you, if any, you must notify us NOW. The specification probably provides that it is your responsibility to provide any additional conduit or power that is needed and was not shown on the drawings as being provided for you when you bid. Now is the time to work out this problem. Bring me your problem now and you have an ally. Bring me your problem later and you have just another critic.

Check both the conduit size and quantity on the plans as well as the floor to floor riser diagram if conduit is needed between floors so we can up size now if necessary.

RFIs

RFI's are "Requests for Information". The master specification contains instructions for how to ask questions and get an official answer that covers you from accusations that you made changes or used methods that were unacceptable. When something is unclear you need to seek clarification by submitting a RFI through the proper channels. Calling us directly is acceptable when something is truly pressing but you will still be asked to submit the official question through official channels so you get a formal answer. Verbal responses from us are not to be considered official because the architect was not involved in the process and the answer reflects just our approval.

Now pay attention to this part! Let's say that you ask a question about how to solve a specific problem that is unusual. Perhaps there is a door that does not lend itself to the standard door contact and you ask permission to substitute a less expensive, less time consuming, more profitable solution that solves the problem. You won't believe how many times in the past contractors have taken our permission to substitute in a single unique situation for blanket approval to substitute products or methods for the job in general. When you ask a question in an RFI, you must ask pertaining to a specific situation and our answer applies to that specific situation only. We never give blanket approval for sweeping substitutions in an RFI and you should never assume that because something was OK in one situation it will be OK in others.

While a verbal response may be OK for you to proceed in a pinch, our official written response through the architect is the only thing that covers you. And here's a tip: Save yourself time and money. You will be required to justify any substitution or change at the time of the final acceptance test. Yes, we may remember authorizing the change but probably not. On the set of plans that you keep at the job site and mark up reflecting as-built conditions, circle the change and reference the RFI that authorized it. It is helpful if you include the RFI date as well. And be sure this not gets included on the as-built drawings.

Final Submittal

The specification is clear on what is required. Please read the spec. Note the requirements for:

- As-Built drawings and, if necessary, any product cut sheets for new products added or substituted in approved RFI's. (Substitutions may be needed even if not normally approved. This happens when a detector that is specified is subsequently discontinued by the manufacturer.)
- Operation and Maintenance Manuals
- Locks and key switches. You have certain very specific requirements for protecting the cabinet keys from being copied by workmen who may come back later and use their key to steal. Read the requirement. In some cases, cabinet keys provided by the manufacturer are not acceptable. Read the spec. Do not install key locked enclosures and leave the keys in the enclosure. We don't want every Tom, Dick or Harry to have a copy of this key! Keep the keys and turn them over to us as specified. We will sign for them. Otherwise, you may be replacing all of the cylinders later.
- Verification that security-type screws were used as specified.
- Delivery of properly programmed card keys, if required.
- Power load computations for alarm device power supplies and reader or lock power supplies. Be sure to read the spec as we require that you meet a specific standard.
- Details as to the monitoring by a central station if you arranged this. This includes all information needed to review the account such as a monitoring contract, instructions and programming data provided to the central station, etc. What did you tell them to do in an alarm? Who do we contact there? We need to know this.
- Training Outlines and Materials. See the spec. You have specific training requirements and this is very important. You may be required to train the consultant first. Read the spec. Be sure to comply and provide this material in advance of the final submittal if necessary to meet the close out schedule.
- Provide all software back-ups and components of the computer system not installed such as operating system manuals, etc. The back up must be of the fully completed and accepted system.
- Provide all spare parts as required.

- Note the requirement for providing the manufacturer's latest version of software, not the version when you first took delivery of a product from the manufacturer.
- If there is a Preventive Maintenance provision in the spec and you are required to set up a program with log books, etc., provide them at the time of final acceptance testing or as part of this submittal.

Acceptance Testing

The specification is clear regarding the acceptance test. It will be thorough. The insurer will not allow the building to open without our approval of your system so plan on complying fully with the procedure. This information is provided to help you understand how this process works in this unique high security environment. First, let me say that this acceptance test is not your enemy. It is your friend. If you don't believe me, ask your liability attorney. He would certainly appreciate knowing that you did the job right and we accepted your work and signed off on it before we place literally millions of dollars of irreplaceable assets in this facility. The more perfect the test results, the less liability your company carries.

Scheduling the Test

We are very busy and generally schedule work four to six weeks in advance, depending upon the season. As you finish up the job, keep this in mind and keep us informed so we can protect time for you on our schedule. We'd like to know how it looks about six weeks before you anticipate completion. Don't let anyone force you into an acceptance test before the job is ready to be tested. All too often, the General Contractor, who may have a penalty to pay if the work is not done on time, or the architect, or even the owner, will pressure the alarm contractor into calling for a final acceptance test too soon. If doors are not yet hung, you can't install a contact in them! And if you can, we still can't test the contact properly. Scheduling the final test is a balancing act. But if we test too soon and have to retest, you pay. If you are getting pressure from the General Contractor or others to call for a test before you are ready and you are doing everything you can to meet the schedule but the reason the system is not ready is the result of delays by others, call me and I will try to intervene.

What Constitutes a Failed Test?

That's hard to say. As a rule of thumb, I must certify the system to be complete. If I feel that the Punch List is relatively short and the re-test can be conducted by the owner's representative, director of security, architect or someone else who lives locally, I will do so. This saves you the cost of a re-test. But if the Punch List is long and there are more than a dozen items to be re-tested, then I may have to return and do the job myself.

Certainly, if a door is missing and you could not install the contact, this does not require me to re-test. Someone other than I can check a small number of items. But a large number of problems or problems with programming or with the control panel or computer, or issues requiring my expertise, will trigger a formal re-test.

A “final” acceptance test means “final”. The punch list should be short and minor. Under no circumstance will I certify the system if it does not provide a secure perimeter. Do not call for a test if there is plywood over exterior doors and windows. Collection storage areas must be fully protected and every device must pass the test. We will not certify the system if the system “crashes” during the test or if programming is not substantially complete. We will not certify a system if one of the data gathering panels is off line. Graphics and icons must be programmed and functioning. And we will not certify the system if it does not function essentially as designed and specified. The most frequent reason for a failed test is calling for the test before the system is ready.

Also note that if we find that some issue exists that requires you to go back into a panel and do more work, then we can't be sure that this work won't alter some or all of the things that originally worked properly. So some minor issues can actually trigger a re-test.

Preparing For a Test

We almost always specify the following:

- The contractor must complete all programming, including access cards, action messages, alarm descriptors, VCR's, multiplexers, etc. before we can test. The most common thing missing are graphic floor plans on access control systems. Another item often missing are “events”. If, for example, an alarm is supposed to trigger an action message but does not, we won't even continue the test and will reschedule.
- Training will have occurred and it must meet the specified requirements before we can test. Send us the detailed training outline that clearly defines in detail each of the points you plan to make so we can review it. Your training plan will cover all of the sub-systems you installed: intercom, CCTV, etc.
- All walk test lights will be “on” and visible and they will remain that way. We NEVER turn walk test lights off. If we arrive and walk test lights are off, we will not test. We don't care how you do it in your area or how ill advised this is. Museums never turn walk test lights off.
- All detectors will be set at maximum sensitivity. (See the spec for details). If we walk into an area and have to hit the detector on the head with a notebook to make it activate, we will punch list it. This is important. When you do your pre-test, don't consider a detector to be acceptable if you can sneak past it. If a

detector is supposed to trip at 50 feet then it must trip at 50 feet.

Conducting a Pre-test

Prior to calling for a final acceptance test, you should conduct a pretest. This is in the spec. Check each and every device just as we will, and make corrections as you can. Prepare a punch list and have it ready for my arrival. I understand that some few items may not be ready and your punch list will be helpful to me in conducting my test. Call me in advance with this list so we can cancel the trip if we feel it is too long. Items on this list will be items that are beyond your control such as reader-controlled doors that bind making the electric lock not work properly. This is beyond your control and may take more time to correct. I need to know about it but it may not hold up the test.

The next section of this memorandum may give you insight into how we will test and your test should be just as thorough. I would like to see your punch list at least 24 hours before I depart for my formal acceptance test. (I probably depart the night before the test). You should call me first to discuss your percent of completion, then arrange to email your results to me. If I feel you are not ready for the test, I will tell you. This may save a failed test visit which can be costly.

Our Device Inventory and Spot Inspection

Depending upon our arrival time in your city, the Consultant and his team will arrive at the site and conduct a pre-inspection of our own. We will arrange for our own access and you do not have to set up this tour for us nor do you have to be present. The building does not have to be vacated. We will visit each detector and annunciator in the system and simply make sure it is present and accounted for. We will try, as much as possible, to walk test the detector using the walk test light. We will not wait to see if the device reports in. We are primarily interested in accounting for every device and ascertaining if it appears that the detector is properly aimed. We will note any cosmetic issues with the installation such as plaster slopped on the detector, etc. We will look at each security closet and make a brief visual inspection of conditions and equipment. We will visit the control room and check out the console or control panels and make sure that the console is as specified. This will take us much of the afternoon up to the time of the pretest meeting.

This is only a small part of the entire test and does not constitute the full test. But if too many devices are missing, are not able to be tested due to scaffolding or site conditions, are not powered, do not have walk test lights, or if the security closets are not neat and in conformance with the quality requirements, the test will not occur and we will reschedule.

The Formal Acceptance Test Methodology

In almost all instances, we test in the evening when the building is empty, except perhaps, for guards and engineers. We will ask that the General Contractor (or the alarm contractor if he is not working through a general contractor), arrange for the test by scheduling it and inviting everyone to attend. It is the responsibility of the security contractor to notify the General Contractor and/or owner, as appropriate, that we need the building totally vacant so that we can test the system with all alarms on and not have false alarms. If this cannot be arranged, notify us immediately as this may drastically affect our methodology and extend the time involved in the test. If we arrive expecting the building to be vacant and find too much activity, we may cancel the test and reschedule.

Note that it is not acceptable for the museum VIPs to say that they will work late in their offices and will not vacate. If you encounter resistance, call us and we will talk to the museum's management. We can't test with people present.

We need the following personnel present for the test:

- A minimum of two representatives of the alarm installation company, at least one of whom is thoroughly familiar with the operation of the system and one of whom is an installer. We are not operating this system or conducting the test. You are demonstrating it for us. It is amazing to us how often the person who represents the alarm company doesn't know how to operate it or doesn't have the PIN codes. Also, while we can't wait for you to fix every problem, some adjustments can be made on a few detectors and this may save you the cost of a re-test.
- The Director of Security or his equivalent, i.e., building manager if there is no security director.
- Someone representing the General Contractor if the job is under a GC. If the alarm contractor is a sub-contractor to the electrical contractor, they should be invited to attend if they care to do so.
- Someone representing the architect if they care to attend.
- At least one representative of my firm will attend.

Do not insist upon these people all attending. If they are not needed to conduct the test, they are in the way and will slow us down. Alarm contractor staff, consultant's staff, and director of security are the only essential participants. The test is conducted by the security contractor and we are observers. It is the responsibility of the security contractor to put the system through its paces.

We need the following equipment at the test and it is the responsibility of the

security contractor to arrange for and bring all equipment:

- A minimum of two walkie-talkies capable of talking from one end of the building to the other. If there is an active guard force, perhaps they can provide radios. But they need fresh batteries and we need them dedicated to us. We can't share them.
- Spare batteries for these radios.
- One test tool for every type of equipment requiring a special test tool such as an acoustic glass break detector test tool.
- Any other equipment or tools that may be needed such as a ladder, volt meter, screwdriver, etc. We may even need a lift to reach high ceilings with glass break detectors or skylights with impact sensors.
- Keys to ALL doors, hatches, enclosures, and a properly programmed access card for all card readers. We need access everywhere including to the roof if hatches are alarmed. Be sure we have full access. On more than one occasion we stopped a test because we didn't have adequate access or no one knew how to turn the lights on for us in a new building!
- One set of As-Built drawings, if substantially complete, so that we can spot check for accuracy. As previously noted, we understand that this may not be the final set but we will want to spot check them for compliance with the spec and for accuracy. We will conduct a formal review of them when totally complete.

We will try to schedule a meeting for about 3:00 PM on the day of the test. This is about the time we finish our pretest inspection. At that meeting we will explain the methodology and ask everyone's cooperation in staying with the group and not wandering off, thus creating false alarms. We will assign each person to his assignment. The test will begin immediately after the meeting or as soon thereafter as the building can be vacated.

We will assign one of the Consultant's staff to the control room with one of the installer's people. The installer at the console must be capable of operating the console equipment and understand the programming. We will assign one of the Consultant's staff to the inspection team. He will observe the test conducted by the installer who will conduct the test for us. Everyone else may either sit in the control room and observe or walk with us as we test. Since all alarms will be on, they will be told to remain in a tight group and stay focused, or observe from the control room. The Director of Security should remain with the Consultant during the test since he is probably the person who will retest punch listed items and must understand the methodology.

With all alarms on (we may actually activate alarms floor by floor rather than

building wide) we will begin our test by activating each device one at a time. The installer at the console will notify us by radio as soon as an alarm is received and indicate the alarm descriptor and action message. The consultant's staff member in the control room will observe and verify.

The printer should function. We will progress through the building in this manner until everything is tested. We will attempt to sneak past motion detectors and will request that they be re-aimed if necessary. We prefer to punch list these items and not make corrections immediately during tests of large systems, but corrections can sometimes be made for smaller systems without delaying completion of the test too long.

Note that it is the contractor's responsibility to circulate through the building as soon as it is vacated by staff to close doors and take other measures as needed so alarms set up. We can't activate the system if doors are standing open.

To test a magnetic door contact we will first open the right hand leaf and see if an alarm is received. We will close the door and see if the alarm restores. We will open the left hand leaf and wait for an alarm. We will close the left hand leaf and wait for a restoral notification by the system. Please have a magnet available for doors where we can't activate the second leaf and have to trick the set of contacts.

When testing acoustic glass break detectors, it is NOT acceptable to place the test tool immediately next to the detector when testing. We will place the test tool next to the glass.

We will test every component including panic buttons, card readers, request to exit devices, electric locks, local audible alarms, delay locking devices, etc. until the entire system is tested.

We will then test cameras by observing the quality of the picture and their aim. I will look for "noise" or interference. We will test zoom, tilt and pan functions and inspect cosmetics of the work. The process for digital systems is much more complex.

We will check programming of the CCTV system components. We will check recording quality. We will verify the hard drive size to assure that the recording duration specified can be met with the product provided.

When we test the alarm control panel or computer, we will test programming, software, graphics, etc. We will systematically work our way through the entire system. As alarms come in, we will make sure that the correct descriptor displays.

We will test the central station by calling them and asking them to watch for our

test signal. We will set off an alarm and see if they can tell us what alarm they received (if they get point by point annunciation).

And at some point, we will test the line supervision between the dialer and the central station.

We will test tamper switches on panels and racks that are specified.

After the entire system is tested in this manner we will ask the installer to kill power and demonstrate that the system remains operable on back-up power. The installer should have a plan in mind for accomplishing this. If this requires that an electrician be present, then this should be arranged.

The above is intended as a general guide to how we will progress. Every facility is different. For example, if there is a wireless system, it will be also tested. If there is an internet feed of CCTV signals, this will be tested.

Finally, we will check for conformance with the spec with regard to quality. We will check to see if wires are neatly run and properly labeled. Wire management is important to us. Tamper switches on cabinets will be tested. We will check consoles for the proper number of receptacles specified and to see if fans operate as required. The spec identifies other items to be tested. It is possible that a large building will require two complete nights for testing, so plan accordingly. Note that once the test begins, it will not be interrupted for dinner breaks, so make appropriate arrangements.

Do not assume that we will take two nights. For example, if your system fails the first night, do not assume we will remain in town to save you a re-test trip. If we only scheduled one day on site then we will not extend our stay.

The Punch List

During the progression of work, the Consultant will visit the site on several occasions to inspect. The first visit usually occurs when conduit is nearly complete but before walls are closed up. This gives us a chance to relocate junction boxes if they are improperly placed and still not disrupt other work. We will return when the alarm installer's work has been under way for some time and we can observe quality of workmanship and conformance to the specifications. With each test, we will mark up problems noted on the same set of shop drawings. Each inspection will occur using a different color of ink. When we do the final acceptance test, we will be able to visually see on the drawings the history of problems on the job and ascertain if corrections were made. Please make the corrections. We don't like to see problems on the final test that we punch listed on an interim inspection. Poor wire management is the most common example of this.

Upon returning to our office, we will prepare a punch list and email a copy to the installer, through channels (i.e., through the general contractor, electrical contractor, etc. as appropriate). We will also send an “informal” or courtesy copy to the installer so work can begin on corrections.

Fixing Punch Listed Problems

If the system “passed”, we will not return to retest, but will have someone else handle the retest of punch listed items. It will be necessary for the alarm contractor to set up a mutually agreeable time to conduct this retest, but only after each and every item has been corrected and tested and is assured to be working properly. We will not formally sign off on the system until every item is corrected, all materials are submitted, and other specification requirements are met.

Conclusion

We urge you to re-read the specification with regard to what you are providing and with regard to our quality control requirements. Above all, make your installers read the spec! We urge you to provide adequate submittals in a timely manner and to document the system and changes to your shop drawings as you proceed. Call for the final acceptance test only when you are ready for it, but be sensitive to the need of the owner to move in to their building on time. Everything will happen at once toward the end of the project and you will be very busy. Don't wait until then to begin to plan training sessions, assemble spare parts, and begin as-built drawings. The client has a tight schedule and must move valuable assets into the building without undue delay. If you need more time at the end of the project, it should not be as a result of your poor planning.

Be aware that you may need decisions about programming from the owner or their representatives such as the director of security. They are very busy as they prepare to move. Plan ahead and give them as much time as possible to make decisions. Conduct a pretest and know the status of your system before our formal test occurs. Be thorough. Provide adequate installation and programming staff at the end of the project to wrap things up efficiently.

Level with us if you don't think your system will pass the test on the date it is scheduled. If you do all of these things, I can assure you that you will have an excellent chance of passing the acceptance test when it occurs, with a minimal punch list and no additional expense to you company.

I hope that you find this document to be helpful to you as you undertake this project.