**XVI During Construction**

**­­­­­a) HazMat Testing & Abatement Chrystal**

**What Is It?**

* **Asbestos**: A fibrous mineral, either amphibole or chrysotile, formerly used for making incombustible or fireproof articles and in building insulation. A fabric woven from asbestos fibers, formerly used for theater curtains, firefighters' gloves, formerly widely used in the form of fabric or board as a heat-resistant structural material
* **Asbestos Abatement**: The size and scope of the overall project, with particular reference to the total amount of asbestos-containing material that will be disturbed determines the reporting or filing requirements established in the Asbestos Control Program Rules. An asbestos project is defined as any form of work that will disturb more than 25 linear feet or more than 10 square feet of asbestos-containing material.
* Air monitoring
* Commissioning
* Testing & Balancing
* Material testing
* Audiovisual
* Security
* Furniture
* Low voltage contractor

**Who Is Involved?**

* Every owner of a building where asbestos abatement activity occurs is responsible for the performance of the asbestos abatement activities by his/her agent, contractor, employee, or other representative. Each building owner is responsible for determining the amount of asbestos-containing material that may be disturbed during the course of work.

**How/Process: Before Abatement Work**

* Determine the age of the building. Buildings prior to 1980 should be considered to have asbestos.
* Verify whether a full building Asbestos Survey, Inspection, and Testing was performed.
* If there is a report determine if the area of work contains Asbestos/Hazardous material and whether abatement is required.
* Building inspection
* Deconstruction & Non-Deconstructive survey.
* Inspection & Testing
* Obtain Survey/ Inspection/ Testing Building Report Document for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”
* Coordinate scope of work & disposal w/ OEHS
* Establish OEHS FO for disposal
* Town Hall meeting/notification
* Issue Right to Know notification to contractor.
* 10 day notification SOM
* Abatement operation
* Air monitoring, PO required
* Clearances
* Obtain Air monitoring Reports for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”

**Checklist**

* Common areas to be abated (ceiling tile, pipe insulation, floor mastic, spline ceilings, fireproofing, fume hoods, doors, frames, sinks, concrete, drywall)

**Timeline Considerations**

* 10 day notification to the state

**Forms/Documents**

* OEHS
* Right to Know
* Air Monitoring and occupancy clearances
* Town Hall
* Daily Time & Material Tickets

**Filing**

* Full Building Asbestos Inspection /Testing Report
* Red Files
* Air monitoring reports
* Clearances
* Daily time & material sheets

**b) Air monitoring, sampling - Chrystal**

**What Is It?**

* **Air monitoring**- means airborne asbestos fiber sampling that assesses exposures and the effectiveness of control measures. Air monitoring includes exposure, control and clearance monitoring.
* Exposure monitoring involves taking air samples within the breathing zone to determine a person's risk from, or level of exposure to, airborne asbestos fibers. This method is intended to be used for the sampling of airborne asbestos fibers in occupational environments where the airborne fibers are known to predominantly be asbestos. Exposure monitoring is designed to estimate a person's exposure to asbestos, so that it may be compared with the exposure standard.
* Exposure monitoring includes airborne asbestos fiber sampling, analysis, estimation of time-weighted average exposure and interpretation. Samples are taken within the breathing zone and are usually obtained by fastening a filter holder-monitor to the worker's clothing.

**Air Monitoring-** Air monitoring is mandatory for all friable asbestos removal and must:

* include the asbestos removal area, typically inside an enclosure
* performed immediately before commencing removal work except where glove bags are being used
* performed during the removal work and at other times decided by an independent licensed asbestos assessor/consultant
* performed after work on the asbestos has been completed and the area decontaminated
* An air monitoring program is not always necessary for the removal of non-friable asbestos material, or during asbestos related work, however, it is regarded as good occupational hygiene practice.
* An independent licensed asbestos assessor /environmental consultant/ occupational hygienist must carry out the air monitoring functions connected with asbestos removal work. Various functions include baseline testing, control air monitoring, air monitoring reports, clearance inspections, and issuing a clearance certificate.
* However, air monitoring must be carried out during asbestos related work if the person conducting the business or undertaking is uncertain as to whether the exposure standard for asbestos is likely to be exceeded.

**Who Is Involved?**

* Every owner of a building where asbestos abatement activity occurs at the premise must ensure that an independent licensed asbestos assessor / consultant undertakes air monitoring of the asbestos removal area.
* Owners Health and Safety representatives: WSU-OEHS- Environmental Health & Safety
* Disposal & Landfill requirements governed by local authorities and WSU-OEHS
* WSU-Purchasing if the work is publically bid.
* Air Monitoring consultant /environmentalist along with their trained and certified staff.
* Air monitoring samples should be analyzed by an accredited laboratory accredited for the relevant test method.
* General Contractor, Workers in the work place, Abatement Contractor
* Building Occupants and general public entering the building.

**How/Process: Before Air Monitoring Work**

* Determine the age of the building. Buildings prior to 1980 should be considered to have asbestos.
* Obtain Air monitoring Reports for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”
* Verify whether a full building Asbestos Survey, Inspection , and Testing was performed.
* If there is a report determine if the area of work contains Asbestos/Hazardous material and whether abatement is required.
* Building inspection
* Deconstruction & Non-Deconstructive survey.
* Inspection & Testing
* Obtain Survey/ Inspection/ Testing Building Report Document for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”
* Coordinate scope of work & disposal w/ OEHS
* Establish OEHS FO for disposal
* Town Hall meeting/notification
* Coordination with the General Contractor, abatement contractor, Owner.
* Pre-Construction meeting
* Air monitoring, RFP & PO requirements
* Sampling, monitoring, testing, clearances,

**Checklist**

* Common areas to be abated ( ceiling tile, pipe insulation, floor mastic, spline ceilings, fireproofing, fume hoods, doors, frames, sinks, concrete, drywall)

**Timeline Considerations**

* 10 day notification to the state for amounts above a certain threshold. Check with OEHS regarding threshold amount,.

**Forms**

* OEHS
* Right to Know,
* Air Monitoring and occupancy clearances
* Town Hall
* Daily Time & Material Tickets

**Filing**

* Full Building Asbestos Inspection /Testing Report
* Red Files
* Air monitoring reports
* Clearances
* Daily time & material sheets

**c) Abatement - Chrystal**

**What Is It?**

* **Asbestos**: A fibrous mineral, either amphibole or chrysotile, formerly used for making incombustible or fireproof articles and in building insulation. A fabric woven from asbestos fibers, formerly used for theater curtains, firefighters' gloves, formerly widely used in the form of fabric or board as a heat-resistant structural material
* **Asbestos Abatement**: The size and scope of the overall project, with particular reference to the total amount of asbestos-containing material that will be disturbed determines the reporting or filing requirements established in the Asbestos Control Program Rules. An asbestos project is defined as any form of work that will disturb more than 25 linear feet or more than 10 square feet of asbestos-containing material.
* Air monitoring
* Commissioning
* Testing & Balancing
* Material testing
* Audiovisual
* Security
* Furniture
* Low voltage contractor

**Who Is Involved?**

* Every owner of a building where asbestos abatement activity occurs is responsible for the performance of the asbestos abatement activities by his/her agent, contractor, employee, or other representative. Each building owner is responsible for determining the amount of asbestos-containing material that may be disturbed during the course of work.

**How/Process: Before Abatement Work**

* Determine the age of the building. Buildings prior to 1980 should be considered to have asbestos.
* Verify whether a full building Asbestos Survey, Inspection, and Testing was performed.
* If there is a report determine if the area of work contains Asbestos/Hazardous material and whether abatement is required.
* Building inspection
* Deconstruction & Non-Deconstructive survey.
* Inspection & Testing
* Obtain Survey/ Inspection/ Testing Building Report Document for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”
* Coordinate scope of work & disposal w/ OEHS
* Establish OEHS FO for disposal
* Town Hall meeting/notification
* Issue Right to Know notification to contractor.
* 10 day notification SOM
* Abatement operation
* Air monitoring, PO required
* Clearances
* Obtain Air monitoring Reports for WSU DCS archivist to file in the WSU Hazardous Abatement “Red Files”

**Checklist**

* Common areas to be abated (ceiling tile, pipe insulation, floor mastic, spline ceilings, fireproofing, fume hoods, doors, frames, sinks, concrete, drywall)

**Timeline Considerations**

* 10 day notification to the state

**Forms/Documents**

* OEHS
* Right to Know
* Air Monitoring and occupancy clearances
* Town Hall
* Daily Time & Material Tickets

**Filing**

* Full Building Asbestos Inspection /Testing Report
* Red Files
* Air monitoring reports
* Clearances
* Daily time & material sheets

**d) Project Kickoff** (March 2014 NMilstein)

**What Is It?**

* Coordination meeting with contractor and stakeholders to kick off construction period and review expectations.

**Who Is Involved?**

* Contractor
* Architect/Engineer & any other consultants
* Customer and user groups as appropriate
* Departments who may have activities affected by construction/site
* Project manager
* Building Coordinator
* Building engineer/Operations Associate Director
* Other parties with whom construction details will need to be coordinated such as C & IT (data, phones) , Public Safety etc.
* Risk Management/ Campus Fire Marshal
* OEHS – if abatement is complex and needs to be coordinated
* Abatement contractors
* Vendors who have separate contracts associated with project scope
* Outside vendors who may be doing work in the building/area that may be affected by construction
* Housekeeping and/or Grounds
* Move coordinator
* Testing engineers

**How/Process**

* PM coordinates meeting asap after contract is signed and before construction commences. This meeting should clarify many questions specific to the project: communication/project authority, expectations with regard to contractor responsibilities , site logistics, deliveries, security, cleanup, staging materials, construction schedule, meeting schedule, building utility shutdown procedure etc. The intent is to discuss and document these expectations with the contractor and ensure the customer is aware of the process of construction. It also provides an opportunity to remind the contractor and customer the expectations with regard to site safety, schedule, logistics deliveries etc. By the end of the meeting all should understand the contractual “chain of command” with regard to the project authority. This meeting should make clear that authority to direct the contractor resides with the project manager. Additionally, contractors need to be reminded of campus standards and expectations with regard to construction activities on campus.
* PM prepares meeting agenda (see Pre-construction kickoff meeting agenda Forms/Documents) editing with any special project considerations.
* PM reserves recorder and records meeting. After meeting, PM burns disk for project record.

**Checklist**

* Discuss all items listed in pre-construction meeting agenda adjusting/ expanding the content of the agenda to suit project scope and special details.
* It is helpful to have a floor plan, campus map, Googlemaps view of building for discussion of exiting, fire separation, staging of materials, contractor parking etc.
* In particular review with the contractor the date of substantial completion and liquidated damages as noted in their contract, discuss building notification system and the reason for the 7 day notice and that there are no exceptions, introduce the building engineer if present to assist in communication between contractor and engineer

**Timeline Considerations**

* Meeting should be scheduled as quickly as possible after a contractor has been selected to ensure contract schedule is maintained. It may be scheduled during the time when contract is routing and when draft requisition is signed by the Senior Director as long as it is made clear that mobilization on site must await contract approval. The intent is to ensure that WSU does not hold up contractor from beginning work and constraining project schedule but at the same time, protects the university’s interests by making sure there is a signed contract in place before contractor begins work.

**Forms/Documents**

* Pre-construction conference agenda (in the Toolbox)

**Filing**

* \Project number and Project name\2.0\_Communication\Mtg\_Minutes\Contractor

**e) ­Access (Temporary access card & other access to construction spaces) and Parking – (Swetha & Steven)**

**What Is It?**

* **Obtaining access for contractor to get into spaces in a building**
* **Parking for contractors**
* **Deliveries of goods/material to job site**

**Who Is Involved?**

* **Contractor**
* **Project Manager**
* **One Card office**
* **Public Safety**

**How/Process**

* Parking policy Effective July 2014 – WSU Public Safety: “We are enforcing "NO PARKING" on all mall areas on campus. Loading docks should be used to load/unload supplies at buildings now. Therefore, a 20 minute maximum will be enforced at loading docks at all buildings. If, there is a need to park at a building on the mall, WSU Police must be called prior to any parking to determine the status. This is in effect immediately, and towing will occur.”
* PM can contact Public Safety to notify them of exemptions if a contractor has a long delivery time frame
* Prepaid OneCard can be requested by contractor at Welcome Center. PM needs to send notification to OneCard office in advance. Contractor needs driver’s license and must pay OneCard fee to obtain card. Contractor can load $$ on card to pay for daily parking in WSU structures/lots.

**Checklist**

* E-mail to One Card office to issue OneCard for contractor
* E-mail to Public Safety if contractor is to be allowed to park delivery vehicle for more than 20 minutes. Need make/model/color of car and license plate number noted in the e-mail to Lt Smith, ( add names here and is there a general e-mail for the dispatcher ?)

**Timeline Consideration**

* **Contact One Card Office before contractor goes to the Welcome Center**
* **Contact Public Safety before the contractor arrives on campus**

**Forms/Documents**

**Filing**

**f) Move-Out & Move-In – Nate – check Student Center ( Chrystal)**

**What Is It?**

* The move process is documented in a Powerpoint document that can be viewed in the Toobox….( name document)

**Who Is Involved**

**How/Process**

**Checklist**

**Timeline Consideration**

**Forms/Documents**

**Filing**

**g) Shop Drawings, Submittals and RFIs**

**What Is It?**

* Submittals are documents that are provided to the owner, architect and engineer for their review, approval and consideration to ensure that the specified products and materials are installed per the contract documents. The submittals are used to choose and confirm the materials, their patterns and colors, performance characteristics to meet the contract specifications. The submittals can consist of shop drawings, product data, samples/mockups, warranties, certifications, project manuals etc.

**Who Is Involved?**

* Generally, the architect and/or engineer are responsible for reviewing and approving the submittals with the owner’s rep reviewing the submitted materials for compliance. When there is no consultant on the project, the review and approval process becomes the responsibility of the project manager and/or planner. In conjunction with the appropriate Operations staff.

**How/Process**

* The contractor submits the submittals to the consultant and owner for review/discussion and consultant’s approval. If there is not a consultant on the project, the submittals are sent directly to the project manager and planner for review and approval after consultation with the appropriate Operations staff. The reviewer notes any comments and stamps the submittal to indicate appropriate action (rejected, revise & resubmit, provide as noted etc) and returns it back to the contractor. Contractor is responsible to keep a copy of all final reviewed submittals to include in closeout documents to owner at end of project.

**Checklist**

* The consultant/contractor should keep a shop drawing log that indicates what submittals have been issued by the contractor, when it was submitted and when it was reviewed and returned. The purpose of the log is to track the submittal approval process to ensure that critical milestone deliverables are monitored by the contractor to maintain the project schedule. All parties are expected to support the timely turnover of approvals ( architect, engineer, PM, contractor) to ensure the schedule is not held up by approvals.

**Timeline Considerations**

* The consultant contractually has 14 calendar days to return the shop submittals. Consideration should be taken for submittals for items that have lead times that could impact the project schedule. The submittal log or schedule should communicate required approval dates of critical items to the consultant to encourage their speedy approval where needed.

**Forms/Documents**

* Along with a submittal log to track each submittal, a submittal stamp (see submittal stamp in Toolbox) is required for each submittal to indicate its level of compliance. Typically all submittals are covered with a transmittal to indicate date submitted and the individual items submitted.

**Filing**

* Each submittal should indicate its corresponding CSI division.
* PM should keep a copy of all communication regarding submittals in the appropriate project folder.
* Provide a sample of a submittal/material delivery log in the Toolbox

**h) Inspections- Electrical Inspections**

**What Is It?**

* Inspection by AHJ (Authority having Jurisdiction) to ensure that construction meets all applicable standards according to the National Electric Code

**Who Is Involved?**

* Architect/engineer – provides design drawing for construction and submits to the State of Michigan for plan review (classrooms and dormitories) and electrical inspection.
* Contractor responsible for electrical permit if required.
* Classrooms and dormitories – Electrical inspector provides inspection at 50% completion and final inspections.
* All other spaces- WSU Electrical inspector provides 50% and final inspection.
* Customer – needs to be notified of any test of the system.

**How/Process**

* **Authority Having Jurisdiction:**
  + Classrooms and dormitories- State Of Michigan Electrical Inspector.
  + The WSU electrical inspector is responsible for all other buildings on campus.
* Whenever modifications are being made to the following systems the Electrical Inspector must review and inspect:
* Service
* Distribution
* Power
* Lighting
* Fire pump
* Grounding
* Fire alarm system (Electrical)
* Dampers
* Site lighting
* Generators
* **Items To Remember:**
  + If the project is going to have a phased occupancy each phase will have to be inspected independently.
  + Classroom buildings cannot be inspected before 8 am or after hours due to inspector’s schedules.
* **Role Of Electrical Inspector:**
* Classrooms and dormitories– State Of Michigan Electrical Inspector provides review and inspections.
* The WSU electrical inspector offers oversight coordination and inspects all other buildings.

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* **Classrooms and residence hall:**
  + **Plan Review:**
    - Signed and sealed drawings and a plan review fee must be submitted to the **Department of Licensing and Regulatory Affairs, Bureau of Construction Codes (BCC) Plan Review Division** inLansingin order to startthe reviewprocess. The architect on the project must submit the drawing and specifications and all bulletins and addenda to the State. The plan reviewer will send written review to the architect. Be sure to have the architect send you a copy. All items listed on report must be addressed either by the architect or at the time of inspection. The plan reviewer will list whether an electrical plan review will be required. The project will require Electrical inspection.
* **All other buildings:**
  + The WSU electrical inspector will perform all inspections and acceptance tests for buildings that do not fall under the BCC.

**Checklist**

The items required for final inspection if applicable to your project are:

* The approved set of electrical drawings
* Electrical specifications
* The electrician must be present
* The general contractor should be present

**Timeline Consideration**

The inspector will visit the site two times:

* 50% Inspection (rough or above ceiling)
* 100% inspection
* It is the project managers, or authorized generator contractor and/or electrical contractor’s responsibility to schedule these visits. The project manager must verify that the contractor is ready for the inspections.

**Forms/Documents**

* Forms are completed by A/E and sent with full set of drawing & specifications to the State of Michigan Bureau of Construction for plan review.
* WSU PM is responsible to coordinate review of project with appropriate electrical inspector for 50% completion and substantial completion.

**Filling**

* 5.0 close out– inspection
  + Refer to other sections/documents
    - Retail Projects section for special instruction

**h) Inspections- Mechanical, plumbing inspections Omar**

**What Is It?**

The mechanical inspection purpose is confirming that mechanical installations and repairs comply with state mechanical code.

The inspections covered: Boiler, mechanical and plumping.

Boiler’s inspection can be done by WSU insurance company.

**Who Is Involved?**

* WSU Project Manager
* A/E project manger
* Contractor/Subs

**How/Process**

The mechanical inspection is responsible for issuing mechanical permits; comply with codes and any complaint against contractor.

To get a mechanical inspection or a permit a request should be submit to MI State 3 business days prior to schedule inspection.

The contractor is responsible to submit inspection and permit request.

**Checklist**

1-Do we need a mechanical permit?

2-Do we need a mechanical inspection?

3-Did the contractor made the inspection payment?

**Timeline Consideration**

To schedule mechanical inspection a request should be submit 3 business days prior to inspection, is the request was mailed the inspection will be schedule after 5 business days of receiving the request.

**Forms/Documents**

Forms are available online:

https://www.michigan.gov/lara

**Filing**

W:\FPM Design Const Services\Building Projects\Building Name\Project Name\5.0\_Close\_Out\Inspections\FM

**h) Inspections- Food Service Inspections - Rob**

**What Is It?**

* The State of Michigan has guidelines for operating food establishments in the State The State of Michigan Department of Health is responsible to keep the public safe from food borne illness. The State of Michigan has deferred inspection of Kitchens to WSU OEH&S.

**Who Is Involved?**

* WSU Project Manager
* WSU Associate Director for Lease Space/ Business Operations
* WSU Director of Housing
* WSU Office of Environmental Health
* Tennant of Retail Space
* WSU Dining Services

**Forms**

* WSU OEH&S Drawing Review Comments letter.

**How/Process**

* Transmit the Construction Documents to OEH&S to review and provide comments.
* Send review comments back to Tenant for incorporation into final Construction set.

**Checklist**

* Construction Documents completed.
* Request for inspection by WSU OEH&S

**Timeline Consideration**

* Allow 2 – 3 weeks for plan review and comments.
* Contractor needs to define completion schedule.
* Final Food Service inspection is conducted by WSU OEH&S, and results in a final permit to operate the business.

**Filing**

* Follow WSU Protocol for filing under project folder, permits

**h) Inspections- Elevator - format only ( Omar)**

Elevator, Dumbwaiter and Escalator Inspection

All types of elevating devices installed required an elevator permit. The permit must be taken out by an elevator contracting company licensed to do work in the State of Michigan, and the devise must be installed by a licensed elevator journeyperson.

City of Detroit has its own elevator division and can be reach by calling 313-224-3204

Permit to alter or install new elevator, dumbwaiter and escalator application can be pull by licensed elevator contractor only.

After inspection contractor will need to pay inspection invoice before issue elevator certificate.

**h) Inspections- City of Detroit - Rob**

**What Is It?**

* The City of Detroit shall need to be contacted when work is proposed outside of the property owned by WSU. This work could include work within the Right-of-Way, connections with water and sewer, revisions to drives and walkways, or other items requiring a permit. These items are typically handled by City of Detroit Engineering and Traffic and Safety.

**Who Is Involved?**

* WSU Project Manager
* WSU C&IT
* Architect
* Design Engineer
* Contractor

**How/Process**

* Sealed Drawings by a licensed Civil Engineer are required to be submitted along with permit application by Contractor to City of Detroit.
* Fees are paid by Contractor, reimbursed by WSU if applicable.
* Contractor is responsible for arranging all inspections.

**Checklist**

* The following items may be considered when work in right-of-way; sidewalk closure, street closure, water/ sewer tap, drives, walks, other utilities as required.

**Timeline Considerations**

* City of Detroit Engineering and Traffic and Safety have established procedures that require time on the front of your project to execute. Some items may be approved within a week or two. Other projects depending on complexity may need to be submitted for review and approval by council or appointed board. This process may take a few months to get on the agenda and receive approvals.

**Forms/Documents**

* Forms may be required to be filled out by the Project Manager, or Contractor.

**Filing**

* Follow WSU Protocol for filing under project folder, permits.

**h)Inspections- Fire Marshal inspections Nancy**

**What Is It?**

* Inspections by AHJ (Authority Having Jurisdiction) to ensure that construction meets all applicable fire alarm and fire suppression standards according to codes

**Who Is Involved?**

* **Architect/engineer:** provides design drawings for construction and submits them to the State of Michigan for plan review ( classrooms and dormitories) and Fire Marshal inspection
* **Contractor**
* **Classrooms and dormitories:** AHJ = State of Michigan Fire Marshal, does 50% and final inspections and signs certificate of occupancy
* **All other spaces:** AHJ = WSU Fire Marshal – does 50% and final inspections and provides approval to occupy.
* **Customer:** need to be notified of any test of the system

**Forms/Documents**

* Forms are completed by A/E and sent with full set of drawings & specs to State of Michigan. Bureau of Construction for plan review. Subcontractor for fire alarm device work sends shop drawings to state. The state forwards these documents to State Fire Marshal.
* WSU PM is responsible to coordinate review of project with appropriate AHJ at 50% completion and substantial completion. Campus Fire Marshal will inspect all projects *first* to ensure readiness/completion. Then, if appropriate the State Fire Marshall is scheduled to inspect.

**How/Process**

* **Authority having Jurisdiction:**
* Bureau of Fire Safety (State Fire Marshal) is responsible for inspecting all classroom buildings and residence halls.
* The University Fire Marshal is responsible for all other buildings on campus.

Whenever modifications are being made to the following systems the Fire Marshal must review and inspect:

* Fire Alarm System (including duct smoke detectors)
* Fire Suppression System
* Egress Path
* Fire Separation (modifying the fire doors, penetrating fire walls or relocating or opening up the fire walls.
* Emergency lighting or exit signage
* **Items To Remember:**
* When construction is being performed in an occupied area a one hour fire separation wall must be constructed to protect the occupants. This needs to be addressed in pre-bid meetings, pre-construction meetings and confirmed that contractors have accounted for this in construction bids & pre-construction kickoff meetings. Review construction exiting and fire separation plans with campus Fire Marshal during pre-construction kickoff meeting
* Hot work permits must be obtained by the contractor performing the work. See hot work policy.
* If the project is going to have a phased occupancy each phase will have to be submitted and given their own BFS number in order to receive multiple certificates of occupancy even if the drawings are exactly the same.
* Classroom buildings cannot be inspected before 8 am or after hours. Most programmable fire alarm systems can be silenced during testing so not to disturb other occupants. Coordinate/provide building notification to all stakeholders so they are aware a test is being performed.
* Temporary Certificates of Occupancy will only be granted for paper work deficiencies not incomplete work. Temporary Certificates of Occupancy must be resolved in less than 30 days.
* Refer the contractors to the WSU Fire Safety Manual. It contains our policy on hot works and other safety items. It can be found at the following web site. <http://idrm.wayne.edu/risk/fire-manual/index.php>
* **Role of the University Fire Marshal:**
* The University Fire Marshal (UFM) offers oversight and coordination with the State Fire Marshal (SFM) and inspects all other buildings that do not fall under the State Inspectors jurisdiction. The UFM must be copied on all documentation sent to the State. The UFM will walk the sites before the inspections are called for to verify that the project is truly ready for inspection. On small projects the SFM may assign the inspection duties to the UFM.
* The UFM will perform all plan reviews and inspections for buildings that do not fall under the SFM (See below).
* **Classrooms and Residence Halls:**
  + **Plan Review:**
    - Signed and Sealed drawings and a plan review fee must be submitted to the **Department of licensing and Regulatory Affairs, Bureau of Fire Services, Plan Review Division** in Lansing in order to start the review and inspection process and establish the BFS project number. The architect on the project must submit the drawings and specifications and all bulletins and addenda to the State. The plan reviewer will send a written review to the architect. Be sure to have the architect send you a copy. All items listed on the report must be addressed either by the architect or at the time of inspection. The plan reviewer will list whether an electrical plan review and inspection, fire alarm and fire suppression shop drawings will be required. The contractor submitting the fire alarm shop drawings must be Act 144 Certified and is required to submit all documentation and fees required to obtain permits and inspections. The BFS will not require mechanical or plumbing inspections.
* **All Other Buildings:**
* The UFM will perform all plan reviews, inspections, and acceptance tests for buildings that do not fall under the SFM. The UFM shall review the project during the planning\design process or the job order contracting scoping meeting and walk through. The UFM must be invited to the 90% document review meeting. Though there are not any fees paid nor do the documents need to be signed and sealed by a licensed architect the same submittal and notification process should be followed for the UFM.
* The earlier the UFM is brought into the process the easier it is for him to assist you. Remember that he has the entire campus to cover so adequate review time and proper early notification time must be anticipated in your schedules.

**Checklist**

* The items required for final inspection if applicable to your project are:
* Point by point lighting calculations for emergency lighting
* Fire alarm and fire suppression submittals
* The installing fire alarm contractor must be present and must be Act 144 Certified and provide documentation that the system has been tested ( 12A)
* The electrician must be present
* The fire suppression contractor must be present
* The security contractor making the final connections to Public Safety must be present.
* Flame Spread and Smoke Contribution affidavits

**Fire Suppression**: (need input from others)

**Timeline Considerations**

* The Inspector will visit the site three times:
* Construction Consultation
* 50% Inspection (rough or above ceiling)
* 100% Inspection Certificate of Occupancy
* It is the project manager’s responsibility to schedule these visits. The project manager must verify that the contractor is ready for the inspections. Officially the BFS needs 4 weeks’ notice to do an inspection however only in August and September are they usually that busy. They are willing to work with us to get our projects inspected within 10 days or less of our call. Do NOT make everything an emergency. Work with WSU Fire Marshal and Contractor to ensure work is complete and that State Fire Marshal does not make unnecessary trips. Coordinate with other PMs to schedule State Fire Marshal’s visit for several projects to make efficient use of his time.

**Filing/Documents**

* 5.0 Close Out: -Inspections

**Refer to other sections/documents**:

* IX State Review
* Policy 100-004 Authorities having Jurisdiction and Construction inspections
* Retail Projects section for special instructions

**h) Inspections-** **OEHS -**

**What Is It?**

**Who Is Involved?**

**How/Process**

**Checklist**

**Timeline Considerations**

**Forms/Documents**

**Filing**

**i) Impact Reports - Fran**

**What Is It:**

An impact report is the university’s way of giving the contractor permission to do the work associated with a change before the change order is processed, similar to a field order. The scope, the justification, the cost and schedule impact of the change are documented in this process.

**Who Is Involved:** The contractor, project manager, director, senior director, and AVP

**How/Process:** Fill out Impact Report form and obtain the required signatures.

The scope of the work is to explain to the administration why and what work is being accomplished. This description should be more detailed and complete for those who understand construction.

The cost impact is should reflect the total cost and if it is a lump sum or an estimated not to exceed cost. If an estimate is used then according to the language in the Impact Report the contractor must provide a quote within 5 business days from the date on the IR. In the case of an estimate the contractor should sign the IR.

The schedule impact should explain if an extension to the completion date is being given and state it. This should explain if the general contractor asked for additional general conditions. The general conditions must be defined and included in the cost of the impact report. An extension of time does not guarantee additional general conditions fees.

The cause of change helps us track why the change happened. There can only be one per impact report. An error is when something is designed, specified or installed incorrectly. If a green framinator was specified and the contractor installed a blue one then that is an error. If the architect forgot to specify the framinator and now we no longer have the benefit of bidding it then it is an omission.

A copy of the financial summary with the IR recorded on it must be attached to the IR for distribution during the signature process.

**Checklist:** The Impact Report once signed by the AVP must be recorded in PTS by the clerical staff of the department. This is done for tracking purposes.

**Timeline Considerations:** Impact Reports must be signed by the AVP before the work is started, if necessary hand carry the IR for all signatures. This should only be done in emergencies only. The IR must be converted into a change order within 30 days of the AVP signature.

**Forms/Documents:** Impact report, Financial Summary

**Filing**

**j) Change Orders - Fran**

**What Is It:** A change order is a contractual amendment between the vendor (consultant or contractor) and the university changing the scope, schedule, and or value of the contract. It must be fully executed in order for the vendor to bill for the work.

**Who Is Involved:** The contractor or consultant, project manager, the director, senior director of design and construction, the associate vice president of Facilities, the Vice President of Finance and Business Operations.

**How/Process:** The first step is to have an Impact Report completed. An impact report must be converted into a change order within 30 days of the AVP’s signature. More than one impact report can be included in a single change order.

The following items are to be included in the red book for processing of the change order:

Fill out the change order form that is located in the toolbox. Reference the policy and procedures in the tool box for the naming convention. Have the contractor sign the form and provide two copies of the form with original signatures.

Update the financial summary and the plant fund status sheet to reflect the IR cost.

Fill out the change order request (COR) form.

Copies of the template executive summaries are found in the toolbox. Review these to find the one that best fits your change order. See the section on Executive Summary to understand how to fill this out.

**Checklist**

**Timeline Considerations**

**Forms/Documents:** Change Order No Contractor, Changer Order No Short Form, Executive Summary

**Filing**

**k) Allowance Tracking – Nancy**

**What Is It?**

* An Allowance is an amount identified in the bid documents that will be used for a specific scope of work and must be approved by WSU before use. If the allowance is not used, the amount is deducted from the amount owed to the contractor at the end of the project. So - if you have a bid of $90,000 which i*ncludes* an allowance of $10,000 for widgets, and the widgets are not purchased, the contractor is owed $80,000.

**Refer to other sections/documents**:

* IX State Review
* Policy 100-004 Authorities having Jurisdiction and Construction inspections

**Who Is Involved?**

* Architect/engineer
* Purchasing
* Project Manager
* Associate VP, FP & M

**How/Process**

* Your architect/engineer may have some good suggestions with regard to items that may be suitable for an allowance. A good example is fire alarm work, where some of the scope is “design/build” – the contractor will be confirming existing conditions and locations where additional devices may be needed, so an allowance and unit price defined in the bid documents can be used to keep the prices defined during bid and helps to keep a cap on the potential for change orders.
* Define allowance amount and any unit price categories required in the bid package and on the bid proposal form. Make sure the bid amount includes the wording as follows:

“…… which includes an allowance of $XXX,XXX.00 for (allowance title).”

* The allowance is tracked internally each time the contractor and project manager and architect/engineer agree that the allowance should be used. Since we have already “purchased” the dollar value of the allowance, impact reports and change orders are not needed. Use the allowance tracking form, highlighting the current amount to be used a

**Checklist**

* Clearly define the allowance as *included* in the bid price in your bid package.

**Timeline Considerations**

* Submit allowance tracking form and backup documentation as needed from the contractor ( time and materials information) as soon as additional costs have been quantified and all stakeholders are agreed on the expenditure of a portion of the allowance**.**

**Forms/Documents**

* Allowance tracking form ( in the Toolbox)

**Filing**

**l) Hot Work Permit – Nancy – check with Bill Kemp – 2 processes**

**What Is It?**

* Contractor needs to inform the university any time hot work is to be performed during a construction project and provide appropriate “fire watch” services following the event to monitor the job site to protect University property from sparks, welding overspray etc.
* PM is involved only in the regard that they make sure the contractor contacts ORM to obtain the necessary hot work permit so ORM is aware of any hot work on campus on an ongoing basis.
* ( (Bill - Does ORM inspect anything – either as a random check or a scheduled visit during the hot work activities?)

**Who Is Involved?**

* Contractor
* Office of Risk Management/Campus Fire Marshal (313) 577-3110 or www.risk.wayne.edu
* Project Manager

**How/Process**

* Minimum of 24 hours prior to activities defined as hot work ( anything using a torch, welding……?? etc) contractor is responsible to contact ORM for hot work permit.

**Checklist**

* Post approved hot work permit at the job site before work commences
* Provide fire watch activities for the amount of time required by ORM after hot work is completed.
* Keep documentation of fire watch activities (provide them to ORM?)
* *There is no excuse for contractor to skip this step*. This should be discussed during pre-construction kickoff meeting so contractor is aware of the process.
* Any questions – call ORM

**Timeline Considerations**

* 24 hours minimum notification to ORM – more is preferred

**Forms/Documents**

* Hot work Permit – obtained from ORM and posted at the job site

**Filing**

* Project file

**m) Building Notifications & After Hours/Weekends/WSU Shutdown –including noise/disturbance notifications - (complete except Steven’s new form /process)**

**What Is It?**

* **After hours/Weekend shutdown notification (Omar Jan 29,2014)**
  + After 5:00 PM during business days
  + During weekend
  + 3-During official holidays.
* **Why we need it after hours or weekends?**

The reasons for after hours or weekends shutdown are:

* The shutdown is affecting on classes or cause disturbance for occupant
* Doing the shutdown at the same time for scheduled maintenance shutdown
* **Who is in charge?**

Project Manager

**Who is involved?**

* Project Manager
* FPM-Operations
* Contractor(s)
* Building coordinator
* Risk Management (if needed)

**Check list**

* Are you sure you can’t do the shutdown during normal business hours
* Are you sure this shutdown will not affect on other occupied buildings
* Are you sure that shutdown time window is suitable for required work
* Are you sure utilities will be ready before next business day
* Did you scheduled the shutdown at same time for regular maintenance shutdown
* Do you need any permits to do the shutdown
* Do you need any inspections after the shutdown (if so is this affecting the building occupant)
* Do you need to inform other parties about this shutdown (WSUPD, City, etc…)
* Did you sent the project notification 7 days at least prior to shutdown
* Did you got approval from all the parties
* Did you scheduled a meeting before this shutdown
* **Notification Process:**
* Set the date & time
* Prepare & send WSU shutdown notification form (to whom?)
* Scheduled a meeting
* Confirm all required permits are on hand
* Contact all other parties if needed (WSUPD, City, etc...)

**Forms/Documents**

* WSU project notification form

**n) Furniture and/or equipment installation/ certification - Nancy & Claudia**

**What Is It?**

* Furniture that is ordered may need to be delivered and assembled and installed. This can include tables, chairs, work stations, lab casework etc**.**

**Who Is Involved?**

* Furniture company & their installers
* PM
* Planner
* Customer

**How/Process**

* Once furniture order is completed, furniture installers will assemble and install furniture as required.
* Coordinate furniture installation with construction keeping an eye on delivery schedules and construction punchlist completion. Make sure construction punchlist is quantified before furniture installers are on site so it is clear who has responsibility for paint “dings” etc that occur during furniture delivery.
* Furniture delivery and installation will have a separate punchlist inspection, usually done by our planners. Do not sign anything without checking with thePlanner – if you sign abill of lading, it may imply that punchlist is complete, so coordinate with your Planner.
* If space is occupied currently, PM and planner need to coordinate with the customer with regard to delivery of new furniture.

**Checklist**

* There may be keys, care manuals, spare parts etc that need to be turned over to the customer. If they are delivered directly to the customer, the vendor should obtain a signature on a transmittal for these items so PM and Planner know the parts have been received.
* Make sure delivery is coordinated with loading dock requirements in the building, elevator use, student schedules/traffic, building activities, etc – and construction activities.

**Timeline Considerations**

* All furniture has a lead time – work with the Planner to understand what the lead time is on the furniture that is to be purchased so you can coordinate with your other construction activities.

**Forms/Documents**

* Refer to Handbook Chapter III F for information on the furniture procurement process.

**Filing**

* File furniture documents with the archive documents for the project for future reference.

**o) Telephone Service Request (telephone, voice, data – including test reports - Tom**

**What Is It?**

**Who Is Involved?**

**How/Process**

**Checklist**

**Timeline Considerations**

**Forms/Documents**

**Filing**

**p) C & IT Coordination (department & C & IT) (including - AV, Network, refer to security, wireless, switches, cameras, patch cords, test reports, fiber As-Built -Omar**

**What Is It?**

The coordination with C& IT is required in every project includes AV, network, phone, security systems, wireless network, switches, cameras, patch cords and digital signage.

**Who Is Involved?**

* WSU Project Manager
* A/E project manager/subs
* Contractor/Subs
* C& IT Project Manager
* Customer C&IT

**How/Process**

The A/E or his subs need to review C&IT standards during design phase, WSU project manager will submit TSR (Telephone Service Request) to C&IT, C&IT will assign a project manager for each project.

C&IT project manager will send a questioner to WSU project manager to provide project details, C&IT project manager will attend construction review meetings and he will confirm the scope of work and complying the project specifications with C&IT standards.

During construction WSU project manager and C&IT project manager will review the construction process to confirm the progress and confirming complying the specifications.

WSU project manager and C&IT project manager will review the test reports done by a third party and direct the contractor to correct and comply the specifications.

**Checklist**

1-Do we need to contact C&IT?

2-Do we submit TSR?

3-Did we receive the test reports?

**Timeline Consideration**

WSU project manager should submitted TSR form once he knew the project scope of work. For mega project C&IT project manager will attend the design meetings from day one but for other projects C&IT project manager will attend the meetings at DD phase (design development phase).

If the project required new phones a new TSR form should be submitted to C&IT.

**Forms/Documents**

TSR form is available online at:

http://computing.wayne.edu/telephone/tsr-initiationestimate.php

**Filing**

The test report can be saved in:

W:\FPM Design Const Services\Building Projects\Building\_Name\Project\_Name\5.0\_Close\_Out\Commissioning

**q) Material Testing**

**What Is It?**

* **Materials testing:** Is the process of pulling, bending, twisting, turning, hitting, and squeezing building materials or components to make sure they withstand theintense stresses, strains and impact forces they are likely to experience in useand application. In other words, materials’ testing examines the overall strength,toughness, flexibility, suitability and fitness for the intended purpose.

**Why is it required?**

* + Effective materials testing are essential to verify building material characteristic for application trials, detect defects, and analyze failures.

**Who Is** **Involved and What Are Their Roles?**

* **Material Testing Vendor:** Study project document, perform required tests and submit test results.
* **General Contractor:** Schedule testing services with testing vendor and sign time tickets for the technician in the field.
* **Architect/ Engineer:** Identify and specify tests and acceptable parameter required for the project and review test reports for compliance with specifications
* **WSU Project Manager:** Bring testing vendor on board before construction commencement, manage / coordinate all testing activity from start to acceptance.

**How/Process**

N/A

**Forms**

**Filing**

* File all test reports electronically in a folder.
* **Reference:**
  + See attached list of tests that may be required for a construction/renovation project.

**r) Security**

**What Is It?**

* This comprises of installation of security devices such as cameras, alarms, onecard machines and associated infrastructure.
* Security devices can report locallyor report to a central networking system (WSU Police).
* **Why is it required?**
* The purpose to install security devices is to protect and monitor university’s property and personal.

**Who Is Involved and What Are Their Roles?**

* **General Contractor / Security Vendor / Electrical Subcontractor:** Furnish, install and test security devices per university guidelines and project specification. Coordination with the project team is required before final installation.
* **WSU Police / C&IT (department and university ) / One Card Office:** Participate in coordination meetings and facilitate testing of security devices.
* **WSU Project Manager:** Make sure key team members are involved early on in the project and all security concerns from customer and WSU Police is being addressed.
* **Architect / Security Consultant:** Answer questions / concerns that come up during coordination / installation and verify that work is performed per specifications.

*\*****Note: WSU Police plays a role only if the security system in the project reports* *back to Public safety.***

**How/Process**

* Security contractor can be the General Contractors sub-contractor or could be directly hire by WSU.

**Critical Timeline/Timeline Considerations**

* Security consultant must be involved during planning Phase of the project. There are infrastructure required that should be covered in the construction document.

**Forms/Documents**

**Filing**

* File hard and soft copies of as builds drawings. A set of drawing must be sent to WSU Police for their files.
  + **Reference:**
    - Other primary contracts / methods of contracting

**s) Testing and Balancing**

**What Is It?**

* It is the process of performing air and hydronic flow / pressure measurements on the building HVAC system. Flow is adjusted to achieve optimum performance of the building environmental equipment.
* **Why Is It Required?**
  + Testing and balancing is performed to achieve proper operation of the HVAC system in a building.

**Who Is Involved and What Are Their Roles?**

* **Testing balancing vendor:** Perform required tests, adjustments and balance building HVAC system and submit results.
* **General Contractor:** Schedule and facilitate testing – balancing with WSU PM and testing vendor.
* **Architect/ Engineer:** Verify proper operation and capacity of existing HVAC System, design new or revisions to the existing HVAC system to support renovation of the space, and review test reports for compliance with design and specifications.
* **WSU Project Manager:** Bring vendor on board before construction commencement, manage / coordinate all testing – balancing activity from start to acceptance.

***\*Note: Testing and balancing vendor are in some cases directly hired by the General Contractors.***

**Critical Timeline/Timeline Considerations**

* A testing and balancing vendor must be brought on board before construction commencement. It is important to measure air and water flow / pressure of existing HVAC system.

**How/Process**

N/A

**Forms**

**Filing**

* File pre and post construction test reports electronically in a folder.
* **Reference:**
  + Other primary contracts / methods of contracting

**t) Commissioning - Omar**

**What Is It?**

Commissioning is the process of verifying in new or renovated projects by third party, all (or some, depending on scope) of the subsystems for [mechanical (HVAC), plumbing, electrical](http://en.wikipedia.org/wiki/Mechanical,_electrical,_and_plumbing), and controls to achieve the owner's project requirements and as designed by the building architects and engineers. Enhanced commissioning is done for Leeds buildings.

**Who Is Involved?**

* WSU Project Manager
* A/E project manger
* Contractor/Subs
* Commissioning agent project manager
* Building Engineer

**How/Process**

Fundamental

* Designate CxA (must not be part of the design or construction team, though they may be from the same firm.  Could also be employee or consultant of the Owner)
* Review Owner’s Project Requirements (OPR) and Basis of Design (BOD) for clarity and completeness.
* Develop and incorporate commissioning requirements into the construction documents.
* Develop and implement a commissioning plan.
* Verify the installation and performance of the systems to be commissioned (HVAC&R and associated controls, lighting and daylighting controls, domestic hot water systems, any renewable energy systems).
* Complete a summary commissioning report.

Enhanced

In addition to the above…

* Designate CxA *prior to* construction documents phase (must not be part of the design or construction team and *must not* be an employee of the design firm, but may be contracted through them.  Must not be an employee or contracted through a contractor or construction manager).
* Must review at least once OPR, BOD, and design documents prior to mid-construction documents phase, and must back-check review comments.
* Must review contractor submittals applicable to systems being commissioned for compliance with the OPR and BOD.  This shall be concurrent with the A/E reviews and submitted to the design team and the owner.
* Develop a systems manual that provides future operating staff the information needed to understand and optimally operate the commissioned systems.
* Verify that the requirements for training operating personnel and building occupants are completed.
* Must review building operation within 10 months after substantial completion with O&M staff and occupants.  Include a plan for resolution of outstanding issues

**Checklist**

* Hire Commissioning agent early so design can be reviewed
* Do we need a commissioning agent?
* Commissioning agent scope of work
* Commissioning documents on time
* Final commissioning report

**Timeline Consideration**

* Reviews of construction documents and shop drawings within 10 calendar days
* Construction observation and commissioning meeting once every month
* Final commissioning report within 90 calendar days from the date of substantial completion

**Forms/Documents**

* Forms are completed by commissioning agent and sent with full set of supporting documents. Supporting documents includes (or some, depending on scope): Full set of drawings, Tracking sheets, Field observation reports, meeting minutes, pictures, equipment data, description of operation, startup check list & recommendations.

**Filing**

W:\FPM Design Const Services\Building Projects\Building Name\Project Name\5.0\_Close\_Out\Commissioning

**u) Fire Watch Services**

**What Is It?**

* Service company provides individuals to walk a building and check for possible fire during a time when the building alarm system is not in service. Their mission is to act as a temporary alarm system – they call Public Safety if fire conditions are discovered. They must walk the building at least once an hour and records their observations.

**Who Is Involved?**

* Office of Risk Management
* Project Manager
* Vendor approved by Risk Management and Public Safety ( currently Securitas)

**How/Process**

* Coordinate with office of Risk Management to get a quote from their approved vendor.
* Vendor will provide invoice to Office of Risk Management who forwards it to us.
* Project Manager signs invoice and submits to Business Services for “direct pay request”, to be billed to plant fund.

**Checklist**

* Get quote from Office of Risk Management
* Let Building Coordinator know that the vendor will be doing the fire watch and that there will be two people in the building walking the building hourly.
* Check to determine whether vendor needs keys/onecard etc to access special spaces

**Timeline Considerations**

* Vendor is to walk the building every hour and log observations

**Forms**

* Logs of the fire watch are provided to WSU. Risk Management sends them to the State Fire Marshal

**Filing**

**v) Clock System - Jason**

**What Is It?**

* Central Clock Systems, installed in some of the buildings on campus and at the satellite facilities, require an FCC license for communication.

**Who Is Involved?**

* FP&M Project Manager
* Installing Contractor
* General Counsel

**How/Process**

* Wayne State University has an existing FCC license. The license will need to be amended as new transmitters are installed.
* Obtain FCC Registration Form from Installing Contractor.
* Complete FCC Registration Form and return to Installing Contractor. WSU Federal ID Number is 38-6028429. The license is in Louis Lessem’s name.

**Checklist**

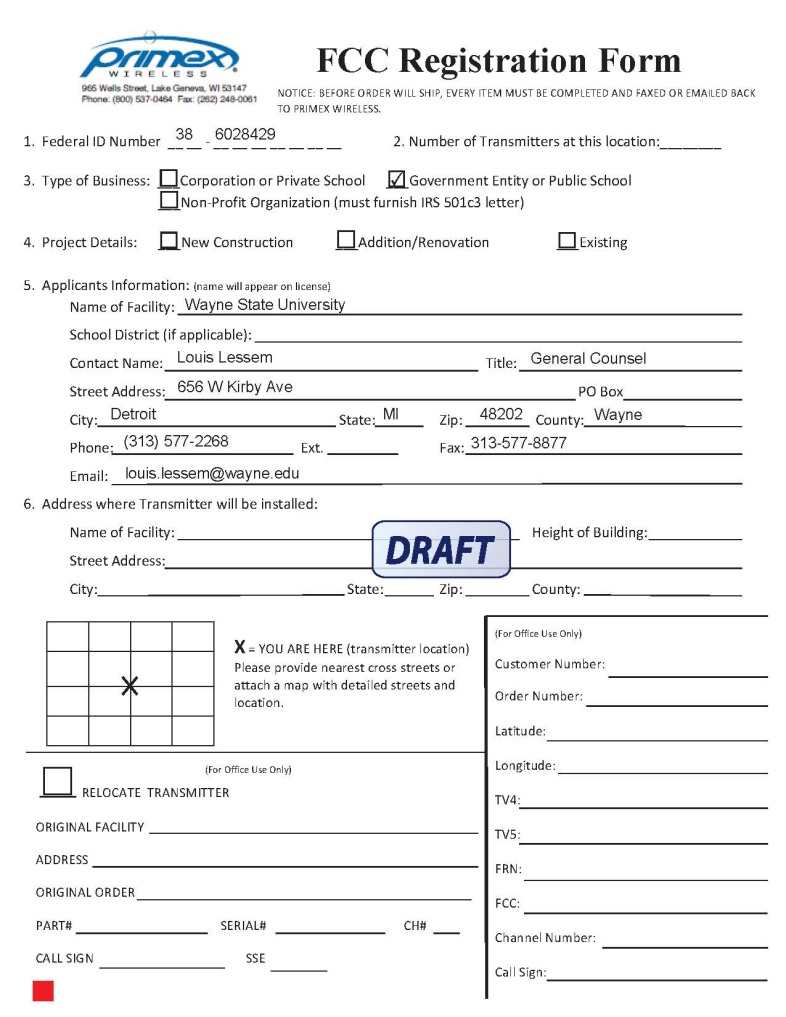
* Complete FCC Registration Form
* Include WSU Federal ID Number

**Timeline Considerations**

* The form must be completed prior to ordering the clock system.

**Forms/Documents**

* FCC Registration Form



**Filing**

**w) Building Controls – Siemens, Honeywell etc**

**What Is It?**

* WSU have a blanket contract with Siemens for controls. All **new** controls will be Siemen’s. If renovating mechanical systems and controls verify with Senior Director of Operations that the new system should match existing system in the building, the size of the project determines how it is designed and bought out.
  + **For Projects less than $50,000:** Design engineer to provide a sequence of operations. The Subcontractor or General Contractor will coordinate, purchase and install Siemen’s equipment using our discount.
  + **For Projects over $50,000:** Siemen’s to be brought in early in design to coordinate controls with design engineers. A req should be created to cover the design costs for Siemens. Siemens to produce control documents including sequence of operations for the bid set released with the balance of the construction documents for bids. . The University directly contracts with Siemen’s to purchase the controls at our negotiated discount. The General Contractor or CM will solicit a bid for the installation of the Siemens controls purchased by the University.

**Who is involved?**

* The director of utilities

**How/Process**

**Checklist**

**Timeline Considerations**

**Forms**

**Filing**