



# **TARRANT COUNTY**

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## **FACILITIES MANAGEMENT**

### **FACILITY PLANNING, DESIGN AND CONSTRUCTION PROCEDURES, GUIDELINES AND STANDARDS**

**THIS BOOK INCLUDES:**

<b>ORIGINAL</b>	<b>JANUARY 1, 2008</b>
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<b>REVISION 2,</b>	<b>AUGUST 1, 2008</b>
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<b>REVISION 18,</b>	<b>JULY 24, 2012</b>
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<b>REVISION 24,</b>	<b>MARCH 24, 2015</b>
<b>REVISION 25,</b>	<b>MAY 05, 2015</b>
<b>REVISION 26,</b>	<b>MARCH 22, 2016</b>

# **Tarrant County Facilities Management Facility Planning, Design and Construction Procedures, Guidelines and Standards**

January 18, 2008

Revision 1

This document is to be used by Facilities Management employees, architects, engineers and others teaming with Tarrant County to deliver facilities for Tarrant County.

The document is sectioned as follows:

Planning

Design

Bidding

Construction

Close out

## **Planning**

P1. When you are called upon by a department to assist with a building space opportunity, provide (in writing) the problems with the current space, with appropriate detail (historical data, increase in staff, change in technology, security issues, etc.). A letter from the requesting department is suggested.

P2. If the proposed space changes include architectural improvements or alterations the building, engage a qualified architectural firm. If the changes are mostly mechanical, electrical, etc., engage a qualified engineering firm. If the requested changes do not alter the building (i.e. new work stations), other means are acceptable.

P3. If new or renovated space is requested, a building space program (detailed space needs assessment and adjacency analysis) is required.

P4. The requesting department head or elected official should sign-off (in writing) once the program is reviewed and approved by the department and official.

P5. A project cost estimate is required. If the project is fairly small and straightforward, an in-house estimate is appropriate. If not, the architect or engineer should assist in providing the estimate of cost of construction. A total capital budget form (the 4 page Excel spreadsheet we commonly use) must be completed to capture all costs associated with the project. In higher dollar (say, > \$5.0 mil) and/or complicated projects, a professional cost estimator should be engaged to develop a detailed cost estimate.

P6. Use the Planning Check List to ensure you have considered all stakeholders, regulations, laws, in-house requirements quality control procedures and costs.

- a. List the stakeholders (all internal departments, local, state and federal agencies with impact on the project or interest in the project).

- b. Does the project require architectural and/or engineering design?
- c. Has the proposed site been checked for environmental issues?
- d. In the case of excavation of county property, has the Texas Historical Commission been notified (per Antiquities Code)? Has an archeologist been engaged to determine historical significance?
- e. Has all the asbestos, lead and any other hazards been abated?
- f. Has the architect been in contact with the city to discuss zoning, platting, parking requirements, proposed uses of the new facility, etc.?
- g. Has a boundary/topography been completed to indicate property lines and ownership?
- h. If demolishing or cleaning up a site, are there any historical landmarks or designations on the property? Check the local, state and federal designations.
- i. Are there any special restrictions in the deed?
- j. Are there any special interest groups that need to be included in the design (i.e. 1895 Courthouse – TC Historical Commission, Tx Historical Commission, etc.)
- k. Has a master site plan been completed indicating existing buildings, the proposed building and any additional future buildings?
- l. Have the utility companies been in the loop to ensure they can provide service to the proposed project and estimate the cost?
- m. Will the property be impacted by future widening or changes to roads, flood plains, community master plans, etc.?
- n. As in working in downtown Fort Worth, ensure the architect has communicated with the downtown design review board, Downtown Fort Worth Inc., and any other regulatory or interested groups.

There is a more detailed Planning Check List in this book. Please use it as well.

P7. Determine the funding of the proposed project. If the project needs to be included in the capital request for the next year's budget, let the director know.

P8. If the project requires architectural alterations or significant mechanical, electrical or plumbing improvements, Commissioners Court approval is required before the project services and materials are requisitioned.

P9. If a department requests to utilize an area they are not currently assigned, Commissioners Court approval is required before the department utilizes the space.

P10. If the acquisition of property (or a change in use or zoning on our current property) is required for the new project, have the architect meet with city and other governing bodies to flush out zoning, plat, variances and other potential issues. This needs to be completed before the project budget is completed as to capture any improvements necessary to make the project happen (i.e. new masonry fence around the property, new ,

larger water and sewer lines required to serve the project and surrounding area, site drainage issues).

## **Design**

### **The Contract**

D1. In our standard 20+ page architectural/engineering contract, ensure that the A/E is responsible for 1) basic services, 2) graphics, 3) signage, 4) elevator design consultant, 5) LEED consultant, 6) FF&E design, 7) interior design, 8) accessibility design review and inspection, 9) civil (including offsite), 10) mechanical, 11) electrical, 12) plumbing, 13) security consultant and other miscellaneous design consultants. Also, when appropriate, the A/E contract needs to note if the A/E is responsible for inspection and sign-off of the work (in lieu of a city inspector). The A/E contract fees should be set up as follows:

- a. Programming
- b. Basic Services
- c. FF&E
- d. Reimbursables

A sample A/E contract is in this book.

D2. The A/E contract needs to reflect the budget (cost of the work, not the total capital budget) that the A/E uses as a target budget.

D3. For smaller, straightforward professional services, the three page Professional Services contract can be used.

D4. Typically, Tarrant County hires the 1) land surveyor, 2) geotechnical firm, 3) construction materials firm, 4) roof consulting firm, 5) test and air balance firm, 6) commissioning firm, 7) environmental consultant, 8) demolition contractor (if a large demolition), 9) burglar alarm firm and 10) data cable firm separately from the A/E and builder.

### **Sign-Off**

D5. The documents should be reviewed and approved (in writing) at each significant milestone (i.e. schematic design, design development, final bid documents). The requesting department head or elected official should sign-off. Also, the TCFM building services director and staff should review documents at each stage and sign-off. It is easier and less expensive to make a change to a drawing than to make a change to a new building. Make sure the stakeholders are tuned-in to this concept.

### **Design to Minimize Utility Consumption**

D6. Use the office and conference room size standard in the book. Provide an Excel spreadsheet that lists all the spaces with the planned square feet for each space.

D7. Design with energy (electricity, water, gas) efficiency in mind. On new projects and larger renovations, direct the architect to provide options and costs for LEED certification.

- a. When replacing HVAC equipment, have the engineer analyze options for various levels of energy efficient equipment and systems.
- b. Direct the engineers to investigate TXU and other rebates.
- c. Irrigation systems are to be low water usage systems (i.e. drip irrigation).
- d. Specify irrigation controllers with freeze protection, water sensors and other water saving features.
- e. Specify separate irrigation water meters (deduct meters).

### **General**

D8. Ensure that the A/E has completed the furniture plan before bid of the construction work. Ensure the furniture plan is reviewed and approved by the user groups. Ensure the electrical and data outlets marry-up with the furniture locations and requirements.

D9. Utilize the I.T. Department standard size for data closets, connections, etc. Ensure that I.T. is involved during design and has approved the design with regard to wiring closets, phones, cable trays, etc. The I.T. room standard is in this book.

D10. Ensure that the TCFM building services group has had the opportunity to provide a list of spare parts and on-site training to be provided by the contractor. The spare parts are to be included in the contractor's bid.

### **Exterior Wall Systems**

D11. Provide low maintenance finishes in high volume traffic areas and around the building where people walk. Do not use cast stone where people can touch it and lean up against it. Use a polished stone that is easily maintained and looks good for a long time.

### **Interior Finishes**

D12. In janitorial closets, specify 12 to 14 gauge stainless steel at least 48" AFF to protect the drywall long term.

D13. Specify carpet tile, not roll goods. Only use roll goods when absolutely necessary. Discuss the TCFM director before specifying roll goods. Use the Carpet specification.

D14. Specify epoxy grout to minimize dirt and grime absorption. Use the Epoxy and Grout Specification.

D15. Provide low maintenance finishes in high volume traffic areas. Do not use cast stone where people can touch it and lean up against it. Use a polished stone that is easily maintained and looks good for a long time.

D16. If providing a court bench or millwork workstation (i.e. Tax Office), construct a mock-up for the user group to approve before designing and constructing the final work.

**Elevators**

D17. Engage an elevator consultant to assist the A/E in proper analysis of the quantity of elevators needed as well as their design. Use the Elevator specification in this book.

D18. Ensure the proper warranty period beginning as well as proper maintenance service on-call response time.

D19. In multi-level buildings (3+ levels), design in a freight elevator. If a freight elevator is not practical for the project, discuss with TCFM director before deleting the freight elevator.

**Electrical System**

D20. Be conscious of the need for emergency back-up power for the building, given its use and the frequency of power failures in the area.

D21. The AE needs to provide a lamping list of all the different lamps required for all the different light fixtures. The lamps need to be priced out before final selection of the fixtures to ensure we do not have to purchase high-dollar replacement lamps.

**Roof System**

D22. Engage a roof design consultant to team with the architect to design a roof that will not leak.

D23. No internal gutters.

D24. Use the Roof System Standards in this book.

**Exterior Wall System**

D25. When designing wall system (or other exterior component that could leak water into the building), a roof design consultant (or similar) needs to be engaged to double check design materials, connections, etc.

**Fire Protection**

D26. Design for electronic fire alarm systems in each building. The specified system should be an intelligent, addressable system for which parts and service are available from more than one qualified local fire alarm contractor.

D27. Use the Fire Alarm Specification in this book.

**HVAC**

D28. Specify non-ozone depleting refrigerants in the equipment. If non-ozone depleting refrigerant is not commercially available (some small tonnage equip.), discuss with the TCFM director first.

D29. Direct the engineer to provide an analysis and paybacks for various levels of energy efficient equipment options available for your project. Same goes with water heaters and other energy using devices where options are available.

D30. Jail smoke purge systems are to be designed at 37 air changes/hour and have the capacity to obtain 50 air changes/hour.

D31. Engage a test and air balance firm for review of design of the HVAC system.

D32. Specify a building automation system that can be serviced and maintained by more than one local firm. No sole source. Software upgrades free. Use the Energy Management Specifications in this book.

D33. Use N+1 redundancy for chillers and pumps.

D34. Provide a written procedure for operating the HVAC should the automation system fail. Have the operating instructions posted in the chiller room.

### **Plumbing**

D35. Jail inmate fixtures are to have automatic shut-off of water after a predetermined number of flushes or uses.

D36. Water saving automatic flush valves (or similar water saving device) are to be utilized in public and staff rest rooms (not private one fixture rooms). We have been using battery powered operators for toilets, urinals and sinks.

### **Security**

D37. When providing a security card access system, use the Security Access Specification. The new building will be integrated into the security network.

D38. Engage the burglar alarm system firm early in design stage to ensure proper infrastructure and timing of installation.

### **Furniture**

D39. Use the furniture standards. Provide a furniture plan that has the costs of each piece and the cost of each room (can use an Excel spreadsheet).

### **Mechanical System Color Code**

D40. Use the Color code in this book to provide the proper color paint on equipment and pipes, etc.

### **Bidding**

B1. If you plan to use allowances in the bid, you need to discuss with the TCFM director first, before adding the allowances in the bid documents.

B2. In case of renovating an occupied building, will the work impact business in the building? Make sure you have thought through all the ramifications of performing work during business hours and interrupting power, water and gas service to an operating building. Ensure the bidders are advised of the time of day they have to work.

B3. Trust, but verify potential low bidders. Check out references thoroughly. Visit the references, especially if you are hiring them for finish work (i.e. terrazzo repair, concrete work, brick work, painting, etc.).

### **Construction**

C1. Before giving notice to proceed have the contractor provide a base line schedule with the critical path activities indicated.

C2. At the start of each month of the project, have the contractor complete the Look Forward sheet that outlines the key activities and critical path for the next 30 days.

C3. When working in Tarrant County buildings, all contract workers are to have their background checked for security purposes.

C4. Design foundations that will not move. This means utilizing a structural slab or equivalent. No slab-on-grade without TCFM director approval first.

C5. When installing a new roof or making a significant roof repair, the roof design consultant field inspector must be present full time during the work. Reports and photos are required for each day of roof work. If you are not going to use a full time inspector (say, on a simple composite shingle roof), you must have approval from the TCFM director first.

C6. When installing wall systems, the roof consultant must be considered for field inspection services. Discuss with the TCFM director on a case-by-case basis.

C7. Ensure the test and air balance firm (you hired for design review) makes proper periodic inspections of the HVAC during its installation. TAB firm needs to provide daily reports and photos.

C8. Ensure the TAB firm is schedule in advance to test and balance the HVAC system with the contractor.

C9. For transfer of permanent electrical power and other utilities to Tarrant County's name, provide Mike Amador at least 45 days notice before the date the transfer needs to take place. The electrical engineer needs to provide Mike with a letter that states the anticipated load so Mike gave forward to our power aggregator.



C10. On multi-level project, TCFM staff should run the sewer camera down the sanitary sewer lines, storm water lines, roof drains and chilled/condenser water lines to ensure no foreign debris is in them. (After we opened the Justice Center, we found rocks, sand, rebar, concrete, etc. The debris damaged the chillers and other equipment. In the Corrections Center, the sewer pipes had rocks and concrete blocking the lines throughout the building.)

C11. When using products that are poured off-site (precast double tees, tilt wall panels, etc.) the AE is required to visit the production site to ensure quality control.

### **Close Out**

CO1. Close out includes the A/E providing record drawings in AutoCad format.

CO2. Close out includes the building services group reviewing the record drawings to ensure everything they need to operate the building is on the drawings.

CO3. After approval from building services, the TCFM Graphics Division is to add the drawings and specification manual to the K Drive.

CO4. Close out includes having a written procedure (mounted on the wall) on how to start the HVAC should the building automation system fail. Same goes for the major electrical gear.

CO5. Close out includes ensuring all requested spare parts are provided.

CO6. Engage our asbestos consultant to perform a comprehensive asbestos survey on the construction materials the contractor installed before final release of retainage.

CO7. Ensure you have the substantial completion document, the certificate of occupancy, O & M manuals, warranties, release of liens and payment of debts before release of retainage.

CO8. In the case of the A/E inspecting the work in lieu of the city, ensure the A/E has provided a letter stating the work meets all applicable building, fire, etc. codes.

CO9. Ensure the Risk Management Specialist (Paul Wood) is advised the project is complete.

CO10. Close out includes final report and all progress reports and photos from the roof inspector and TAB firm.

CO11. Close out includes the contractor and designer providing close out documents in the filing format as outlined on the Design/Construction Index specification in this book.

## **List of Specifications and date of last revision:**

AE Sample Contract, long version 1/17/08  
3 Page Architect/Engineer Contract, 3/24/15  
3 Page Non-Architect/Engineer Contract, 5/05/15  
Contractor Contract, 8/03/10  
Construction Manager Agreement, 2/17/15  
Performance and Payment Bond Sample, 1/14/10  
Construction Change Process, 4/13/10  
I.T. Wiring closets, 2/23/09  
Carpet Specifications, 1/1/08  
Tile Specifications, 1/05/11  
Elevator Specifications, 1/1/08  
Roof Standards, 1/07/09  
Fire Alarm Specifications, 1/1/08  
Energy Management Specifications, 8/01/08  
Planning Check List, 1/1/08  
Design/Construction Close Out Index, 1/1/08  
Furniture and Office Size Standards, 1/1/08  
Equipment Paint Color Standard, 1/1/08  
Security Access System Standard, 1/17/08  
Toilet Paper and Hand Towel Dispenser Specifications, 7/1/10  
Payment Procedures for CM Contracts, 7/24/2012  
Weapons in County Facilities, 3/22/2016  
Project Closeout Requirements, 4/03/2014  
Break Room Appliance Guidelines, 5/06/2011  
Tarrant County Seal, 6/22/2011  
Courtroom Gate Closure, 3/03/2014  
Safe Area Sign, 5/14/14  
Refrigerant Management Clean Air Act 1990 Compliance, 6/11/2014