



TIA Tenant Improvement Standards

**Planning and Development Division
April 5, 2011**

INTENTIONALLY BLANK

TENANT IMPROVEMENT STANDARDS TABLE OF CONTENTS

1. TIA Statement

1.1	Introduction	pg. 4
1.2	Objective	pg. 4
1.3	Submittal Flow Chart	pg. 5

2. Tenant Improvement Standards

2.1	Civil Minimum Requirements	
2.1.1	General Requirements.....	pg. 6
2.1.2	Airport Wide Drainage & Basin Study.....	pg. 6
2.1.3	Pavement.....	pg. 7
2.1.4	Information & Telecommunication Technologies.....	pg. 7
2.1.5	Electrical.....	pg. 8
2.1.6	Horizontal Control.....	pg. 8
2.1.7	Fire Suppression.....	pg. 8
2.1.8	Master Plan.....	pg. 8
2.1.9	Planning & Development Details	pg. 8
2.2	Environmental	
2.2.1	Storm Water Pollution Protection Plan	pg. 8
2.2.2	Condensate	pg. 9
2.2.3	Dry Wells	pg. 9
2.2.4	Oil/Water Separator	pg. 9
2.3	Architectural	
2.3.1	Hangar Construction Minimums	pg. 10
2.3.2	NFPA - Hangar Groups	pg. 12
2.3.3	Outdoor Lighting	pg. 12
2.3.4	UG Utilities – Blue Stake	pg. 12
2.3.5	Fence & Gates	pg. 12
2.3.6	Addressing	pg. 12
2.3.7	Crane Use	pg. 12

APPENDIX 1	Ground Rules for Construction at TIA & Ryan Airfield
APPENDIX 2	City of Tucson (COT) Development Services Dept
APPENDIX 3	Tenant Sign Guidelines
APPENDIX 4	Example – Drainage Reports
APPENDIX 5	Planning & Development Details
APPENDIX 6	Example – Hangar Slab Design Report

SECTION 1.0

TUCSON INTERNATIONAL AIRPORT STATEMENT

1.1 INTRODUCTION

TUCSON INTERNATIONAL AIRPORT in 2010 is considered one of the top ten customer friendly and appealing airports according to travelers in the country. This is the result of the Airport's commitment to providing an attractive, pleasant experience for passengers, terminal users and tenants.

By establishing Tenant Improvement Standards, TIA encourages the development of quality improvements within the distinct environments of the Terminal, Airside & Landside areas. As a highly visible component of the airport environs, tenant improvements play an important role in achieving the above stated objectives.

These Tenant Improvement Standards will help to establish a means for functional, durable and aesthetically pleasing signage, facilities and exterior elements.

They will also provide a uniform standard by which all tenant proposals will be assessed. Tenants and

their contractors will be required to adhere to these standards throughout the initial design process and any design changes throughout the duration of the Tenant's lease. All projects must be submitted through a design review process at key project transition dates in order to assure adherence to the Standards.

TAA's mission is to plan, direct and provide high quality aviation services and facilities for Tucson in a safe, secure and efficient manner, and to insure that services will be carried out with the highest level of operational commitment, both by Authority personnel and all Tenants.

The goal of the Tenant Improvement Standards is to assist in achieving this mission. ♦

1.2 OBJECTIVE

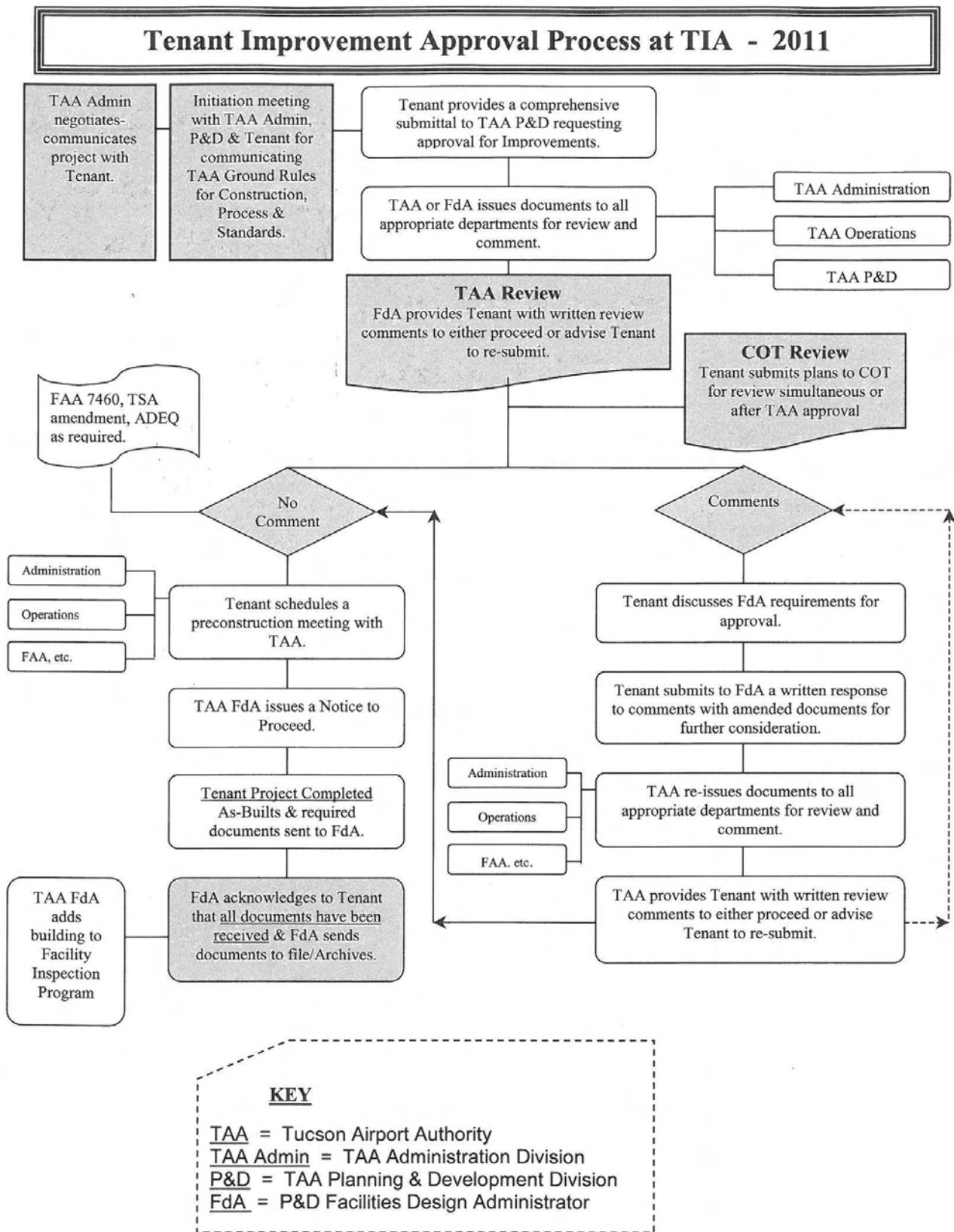
The primary purpose of the Tenant Improvement Standards is to encourage dynamic Tenant solutions to be consistent with the unified aesthetic and functional visions of Tucson International Airport. The standards help establish minimum acceptable basis of design and provide a pattern by which proposals can be evaluated. Tenants must comply with the requirements and conditions set forth in the Tenant Improvement Standards, and are therefore encouraged to become familiar with the intent and details of this document prior to the commencement of work.

It is important that Tenants and their associates are responsible for the preparation of drawings and specifications. The material must follow the procedures outlined herein; however, it is realized that general instructions cannot cover every

situation. The Tenant, working jointly with a TAA management representative, shall resolve specific points at issue unique to the Tenant. Should there be discrepancies between the Tenant Improvement Standards and the Tenant's lease with TIA, the Tenant's lease shall govern.

TAA representatives shall have the absolute right of review and approval over all aspects of Tenant Improvements, as well as discretion to waive any criteria so long as neither the concept, quality or character of the project, nor the airport's aesthetics or functions are adversely effected. ♦

1.3 SUBMITTAL FLOW CHART



SECTION 2.0 TENANT IMPROVEMENT STANDARDS

All tenant improvements shall comply with the most current building codes (AZ State, IBC, Outdoor Lighting, NFPA & Special Inspections), including all City of Tucson local amendments and jurisdictions.

2.1 CIVIL MINIMUM REQUIREMENTS

2.1.1 General Requirements

General

The developer shall be responsible for setting all elevations to insure proper drainage.

The tenant is responsible for field verifying all existing facilities as part of the design of a specific site.

The tenant shall comply with all aspects of the "Ground Rules for Construction at Tucson International Airport and Ryan Airfield".

Referenced Standards

The referenced "standards" refers to the latest edition of the Arizona Department of Transportation "Standard Specifications for Road and Bridge Construction" and the Pima County / City of Tucson "Standard Specifications for Public Improvements".

Water

All water work shall be done in accordance with the standards / approval of the City of Tucson, Tucson Water and shall follow Pima county Department of Environmental Quality (PDEQ) plan review program.

Sewer

All sewer work shall be done in accordance with Pima County Department of Wastewater Standards and shall follow Pima county Department of Environmental Quality (PDEQ) approval process. The Pima County Wastewater Management Department (PCWMD) is now known as the Pima County Regional Wastewater Reclamation Department (RWRD).

2.1.2 Airport Wide Drainage & Basin Study

General

TAA requires appropriate Drainage Reports for improvement projects and monitors the increase in the impervious area, as required to insure that staged detention requirements are met. All Tenant Improvement/Development projects within TIA will be designed in accordance with COT drainage design criteria, regulations, and policies. The tenant shall prepare a site-specific drainage report or statement and prepare grading & Drainage Plans for TAA's review and approval.

Attached in Appendix #4 for your use.

The image displays two sample documents related to airport drainage. On the left is an 'EXAMPLE - TYPICAL DRAINAGE STATEMENT' which includes a header for the engineer's name, date, and file number, followed by a section for the tenant's name, date, and file number. Below this is a detailed narrative statement regarding the drainage study, including references to TAA standards and a note about the availability of a current copy of the TAA Airport Wide Drainage Basin Study Summary Table. On the right is an 'EXAMPLE - DRAINAGE SUMMARY TABLE' which is a complex table with multiple columns detailing various drainage parameters for different areas, including flow rates, detention volumes, and peak discharge rates. A note at the bottom of the table states: 'TENANT TO UPDATE THE TAA AIRPORT WIDE DRAINAGE BASIN STUDY SUMMARY TABLE & INCORPORATE INTO DRAINAGE STATEMENT, a current e-copy is available for the Tenant's engineers use from TAA P&D dept.'

Drainage and Geotechnical Reports

The tenant is responsible for obtaining / preparing drainage reports, geo-tech reports, and foundation designs for the specific sites being developed.

2.1.3 Pavement

Pavement Infill Areas: Aircraft/Apron

Asphaltic concrete per ADOT Standard, Section 416, ¾" mix OF APPROPRIATE DESIGN.
Aggregate base course per ADOT Standard, Section 303, OF APPROPRIATE DESIGN. Compacted subgrade per ADOT Standard, Section 205 and referenced ADOT Specification Section 203-3 and 203-9 OF APPROPRIATE DESIGN. The top 6" of subgrade and all impacted fill material shall be compacted to a density not less than 95% of maximum density as determined in accordance with the regulations of Arizona Test Methods 225, 226 and 227 unless otherwise required for the design. *[Based on the largest aircraft to operate on pavement]*

Pavement Infill Areas: Vehicle

2.5" asphaltic concrete per Pima County / City of Tucson Standard, Section 406, Mix #2.
5" aggregate base course per Pima County / City of Tucson Standard, Section 303.
10" compacted subgrade. See requirements under "Aircraft" (above).

Pavement Infill Areas: Erosion Control (Non-Traffic)

2" asphaltic concrete per Pima County / City of Tucson Standard, Section 406, Mix #2.
6" compacted subgrade. See requirements under "Aircraft" (above). However, density shall be 100%.

Pavement Infill Areas: Curbs, Gutters and Sidewalks

Pima County Standard, Section 908.
No extended curb shall be used without approval of TAA.

Pavement Joining

The edge of existing asphaltic concrete pavement shall be saw cut and removed a minimum of 12" prior to joining with new infill pavements. Joints shall be tacked.

Striping

Pavement striping shall be done using paint that meets the requirements of Federal Specification TT-P-1952. White paint shall be used for airside vehicle striping. Yellow paint with reflective glass beads shall be used for taxi-lane striping. Aircraft striping shall be per Federal Aviation Administration Advisory Circular 150/5340-1.

Testing

Testing shall be completed per referenced Standard requirements by an independent testing laboratory. Passing test results shall be sent to TAA with as-built documents.

Soil Sterilant

Soil sterilant shall be applied under all erosion control pavement to prevent weed growth and pavement damage. Chemical shall be approved by TAA.

2.1.4 Information & Telecommunication Technologies (ITT)

TAA Premises Distribution System Policy & Procedures (PDS)

All work shall be done in accordance with the TAA PDS Policy and Procedures regarding the installation and use of communications infrastructure at TIA.

A current copy can be requested to TAA, ITT Help Desk, 520-573-5100.

General

All work in TAA owned facilities for tele/data, paging/sound systems, security, coax, etc. shall go thru one of TAA's Intermediate Distribution Frame (IDF) rooms. It is the responsibility of the tenant to provide a pathway to the nearest IDF. In some cases, TAA has established pathways via cable tray, J-hooks or conduit.

Cable TV and/or roof mounted antennas' or equipment shall be approved by TAA. TAA has designated antenna farms and building penetrations that the Tenant shall use.

G.A. Area A

Valencia:

An Underground schematic diagram is available upon request from the Planning & Development Division.

2.1.5 Electrical

G.A. Area A

Valencia:

TEP capacity for each tenant has been designed to 400 amps for each lot. Contact the Planning & Development Division for approval of requirements greater than this.

2.1.6 Horizontal Control

General

All Tenant Improvements regarding ground-up construction shall be engineered to tie into one of TAA's Horizontal Control Plans. Plans are available upon request from the TAA Planning & Development Division.

2.1.7 Fire Suppression

General

All Tenant Improvements regarding ground-up construction shall be designed to conform with COT codes regarding NFPA 24 requirements. The minimum separation between Hangars is 40', but can be decreased when certain requirements are met. Fire separation walls and sprinklers may be required based on final design, construction type and final occupancy.

2.1.8 Master Plan

General

All Tenant Improvements regarding ground-up construction shall be developed in accordance with TIA's Master Plan, which is available upon request from the TAA Planning & Development Division.

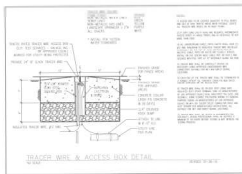
2.1.9 Planning & Development Details

General

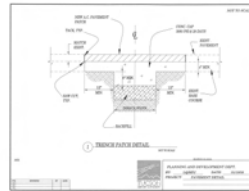
Attached in Appendix #5 for your use.

Tracer Wire & Access Box Detail

House Bill # 2256 Detectable Underground Facilities Requirements states that any underground facility shall be locatable above ground without potholing. TAA has established a detail, Tracer Wire & Access Box Detail, for this requirement.



Pavement Patch Detail



2.2 ENVIRONMENTAL

2.2.1 Storm Water Pollution Prevention Plan (SWPPP)

General

The tenant shall prepare and submit all required notices and a Site Specific SWPPP, furnishing all materials, labor and equipment necessary to comply with all requirements for storm water discharges from construction activities, as specified in the Arizona Pollutant Discharge Elimination System (AZPDES) General Permit. The Contractor shall prepare and complete the Notice of Intent, the Site Specific SWPPP and the Notice of Termination as specified below.

AZPDES Requirements

TAA has provisions that meet the minimum requirements of the State of Arizona AZPDES General Permit for Discharge from Construction Activities to waters of the United States dated February 28, 2003 (AZG2003-001). Tenant to fully comply with all of these regulations. TAA has prepared a general SWPPP for Construction Activities dated June 1998. The TAA SWPPP sets minimum standards to comply with the AZPDES General Permit based on FAA Advisory Circular 150/5320-15 Storm Water Management for Construction Activities dated September 1992. A copy of the TAA SWPPP is available for review at the office of TAA at 7005 S. Plumer Avenue, Tucson, Arizona.

Site Specific Storm Water Pollution Prevention Plan.

The Contractor shall prepare the **Site Specific SWPPP**. The "Best Management Practices and Erosion Control Manual" published by Maricopa County Flood Control District, shall be used as a guideline to prepare Contractor's Site Specific SWPPP. The TAA SWPPP contains a Site Specific SWPPP form for use by the Contractor in developing the Site Specific SWPPP. The Site Specific SWPPP shall be submitted to TAA for review. Approval of the Site Specific SWPPP does not relieve the Contractor of the responsibility to comply with the AZPDES General Permit or other permit requirements.

Notice Of Intent

The Contractor shall submit preliminary copies of the Notice of Intent (NOI) form to TAA. The Contractor shall submit the approved NOI form at least 48-hours prior to the Notice to Proceed date to the ADEQ at the following address: Arizona Department of Environmental Quality Water Permits Section / Stormwater NOI (5415B-3) 1110 W. Washington Street Phoenix, AZ 85007 or fax to: 602-771-4674

The NOI may also be submitted to ADEQ via the "Smart NOI" system (az.gov/webapp/noi/main.do). This allows for electronic screening and authorization of the NOI. Forms still have to be printed, signed, and submitted to ADEQ if using this method. The NOI is voided in 10-days if the signature copy is not received by ADEQ.

The Contractor shall also send a copy of the Notice of Intent to:

Mr. Fred E. Brinker, P.E.	Storm Water Program / NOI
Director of Environmental Services	Pima County Dept. of Environmental Quality
Tucson Airport Authority	150 W. Congress
7005 South Plumer Avenue	Tucson, AZ 85701
Tucson, AZ 85756	Phone: 520-740-3340

Notice Of Termination

Upon final stabilization of the construction site and demobilization of equipment, the Contractor shall submit his completed, signed Notice of Termination form to ADEQ, with copies to TAA, and all agencies who received a copy of the Notice of Intent, thereby terminating all AZPDES permit coverage for the project.

2.2.2 Condensate

General

All condensate from HVAC units and evaporative cooler drains shall be plumbed to the sanitary sewer.

2.2.3 Dry Wells

General

Dry wells are not permitted.

2.2.4 Oil/Water Separators

General

Hangars with floor drains, which are connected to the sanitary sewer, shall be equipped with an oil/water separator and permitted through Pima County Wastewater Municipal Department (PCWMD). The Industrial Wastewater Control (IWC) issues the permits for the oil/water separators.

2.3 **ARCHITECTURAL**

2.3.1 **Hangar Construction Minimums**

General

All hangars shall be designed to maximize the use of the floor area per hangar. The concrete slab shall be designed for maximum weight capacity for the largest plane possible to occupy the hangar, fully fueled (wing span, aircraft length, tail height and weight). All hangar designs shall be submitted to TAA for review and approval per TAA's Ground Rules of Construction.

Attached in Appendix #6 for your use.

The form is titled "EXAMPLE - TYPICAL HANGAR SLAB DESIGN". It contains fields for "ENGINEER: NAME, DATE, FILE #", "TENANT: NAME, DATE, FILE #", and a "Draw" section. The "Draw" section includes a note about the concrete slab design and a diagram of a hangar slab with a circular area labeled "TENANT DESIGN TO MAXIMIZE THE USE OF THE FLOOR AREA BY STATING THE LARGEST AIRCRAFT POSSIBLE TO OCCUPY THE HANGAR.".

Pre-Engineered Metal Building

Acceptable building manufacturers are: VP Buildings, Butler Manufacturing Company, American Steel Building Company. Building manufacturer shall be certified for design and fabrication of Pre-Engineered Metal Buildings by American Institute of Steel Construction and a member of MBMA. Provide a 5-year manufacturer's warranty against defects in materials and workmanship. Provide a 20-year manufacturer's warranty against roof and wall panel rupture, structural failure, blistering, peeling, cracking or excessive color change. Provide a 5-year builder's warranty for building weather tightness as well as a 3-year guarantee against defects in installation or workmanship. The building structure frame types shall be clear span rigid frame (solid or open web rafter) type with straight or tapered sections designed in accordance with AISC construction. Roof slope shall be per local codes. Light gauge, cold formed structural members and exterior coverings shall be designed based upon the applicable sections of AISI. Provide frame design and deflections to be compatible with hangar door design for all loading, deflections, etc.

Hangar Doors

All door systems cannot extend past the building footprint as determined in the Valencia GA hangar area master plan. However, bi-fold doors may project past the front of the hangar as required.

Hangars 10,000 square feet or larger have electric operators

A drive unit unitized assembly, consisting of a totally enclosed fan cooled motor, right angle worm gear box, overload and emergency disconnect and necessary roller chains and sprockets. Single speed, squirrel cage type motor sufficient to operate the door leaves at not more than 75 percent of rated capacity. The drive bases shall be adjustable and designed to rigidly support the drive components without deflection or torsional rotation under the operating loads. A variable frequency drive producing an adjustable-frequency, adjustable voltage, Pulse Width Modulated output. The drive shall be suitable for use with NEMA Design B, AC induction motors with a 1.15 service factor. Drives shall be designed, constructed and tested in accordance with NEMA, UL, NEC, and IEEE standards. Drives shall be factory wired, with overload and under voltage protection, equipped with electrical interlocks and with transformers and relays for control circuits, all enclosed in an enclosure with a disconnect switch, capable of being locked in the OFF/OPEN position. Provide operator with polarized reflex sensors which have both a light source and detector in the same unit. The sensors feature visible red sources to aid in alignment of the sensor with a retro reflector. Provide a programmable relay that will allow the hangar

doors to start from a fully closed position and run at half speed for 2.5 feet, then ramp up to full speed. At 2.5 feet from full open position, doors are to ramp down and run at half speed before stopping.

Bi-Fold Door Systems

All Bi-fold hangar doors shall be steel bi-fold doors as manufactured by Schweiss, Wilson Doors, Inc., or equal. Size shall be maximized to allow for the most flexibility in each hangar design and size.

Doors from Metal Building manufacturers will NOT be accepted unless proven by the manufacturer to be equal to the Schweiss or Wilson doors. Doors shall be constructed of steel tubing and cold formed steel structural members. Provide standard auto locks that automatically lock and unlock door as it opens and closes with a push of a button. Automatic base lock shall secure door in place in the face of heavy wind gusts. Provide standard contact up/down/stop buttons. Provide top and bottom rubber weather stripping providing a tight seal. 230 volt, single phase, pre-wired electric operator with over travel limit switch preventing possible damage from the door trying to open beyond its natural limit. (Final electrification in field) Door to be sheeted with standard 24-gauge wall sheeting to match the walls of the pre-engineered building (26-gauge for lower end hangers such as T-hangers. Standard primer of all steel.

Sliding Door Systems

All sliding door systems shall be as manufactured by Norco Manufacturing Corporations, Fleming Steel or International Door. Size shall be maximized to allow for the most flexibility in each hangar design and size.

All sliding doors systems shall be engineered by a registered engineer from the State of Arizona. Hangar doors from Metal Building manufacturers will NOT be accepted unless proven by the manufacturer to be equal to the Schweiss or Wilson doors. Each door system shall roll upon a bottom rail assembly as follows: Anchor bolts shall be suitable for use intended with double nuts for leveling bottom rail supports. Rail supports shall be factory cut to size and punched hot rolled angles of a minimum yield strength of 36,000 psi for leveling and supporting bottom rails to prevent movement during erection. Bottom rail shall be ASCE specification rail (minimum 20#/yd.) of proper weight to accommodate the design, thrust, and weight loads for each specific installation. Doors shall be constructed of either cold formed or hot rolled structural members as required by design. Maximum deflection for wind loading may not exceed L/180. Door to be sheeted with standard 24-gauge wall sheeting to match the walls of the pre-engineered building (26-gauge for lower end hangers such as T-hangar. Provide upper guide rail and roller system that is compatible with the Pre-Engineered metal building deflection design criteria and as follows: Upper guide rail shall be "H" or "I" shape and conform to ASTM A-36 or better. Size, weight and shape as required for door design. The web of the rail shall be sized to accommodate the building deflection, permitting unopposed operation of the doors under maximum loading conditions. Upper track brackets shall be wide flange beams, supporting the upper guide rails on a maximum of 10' centers. Closure plate shall be 14-gauge sheets sandwiched between the guide rails and track brackets so as to act as both a soffit and diaphragm to help distribute the tributary wind loads of the doors into the structure.

Roof

Provide a roof panel that shall be 24-gauge standing seam roof with minimum 3" high rib and 24" minimum coverage. Panels shall be mechanically seamed such that the final seam shall be a full 360-degree interlocking seam. The seam clips shall allow for +/- 1" of thermal movement. Panels to be 50 KSI minimum yield strength steel. Roof panels shall be white siliconized polyester finish. All hangars will have 26-gauge gutters and down spouts as necessary. There will be no roof penetrations. Accommodation for satellite dishes or antennas will be made on the side of the hangars and will be subject to TAA review. No HVAC/cooler equipment will be allowed on the roof.

Wall Panels

Provide 24-gauge steel wall panels with not less than 1 ¼" deep ribs spaced not more than 12" on center. Profile shall match that of Varco Pruden (VP) "Panel Rib" wall panel. Finish shall be white siliconized polyester. All wall panels shall be standard white colors and trim colors shall be standard blue colors submitted to TAA for final approval.

Concrete

Concrete foundations and slabs on grade shall strictly adhere to the soil investigation recommendations and ACI 301 and 318. Determine concrete slab thickness and reinforcing by engineering analysis, including loading requirements in the design. The size of the hangar and its use shall determine the loading requirements for each individual hangar. Minimum slab thickness shall be a minimum of 6" constructed on minimum 4" compacted ABC. Minimum building slab flatness and levelness shall have an overall value +/- 1/8" in 10 ft. All

foundations and slabs shall require a minimum 28-day compressive strength of 3,000 PSI. All slabs on grade shall have minimum reinforcing of #4 bars at 24" O.C. each way or greater as determined by the loading requirements. All rebar shall comply with ASTM A 615, grade 60. Terminate bars at all cold joints. Provide dowels at all cold joints. Curing of concrete shall adhere to ACI 308. However, all curing systems shall be compatible with the final sealing or coating of the concrete slab. A vapor barrier may be required pending the final sealing or coating system desired.

Concrete control Joints

Saw cut control joints in a square pattern before temperature checking and cracking begin and as soon as strength is such that cutting will not disturb aggregate. Joints shall be spaced equally and shall be no more than 15' apart each direction.

Insulation

All Pre-Engineered metal building insulation shall have a Polypropylene-Scrim-Kraft (PSK) facing as a minimum. No vinyl facing shall be accepted. Thermal value of insulation to be designed per hangar and may vary based on HVAC systems.

Restrooms

All hangars will have at least one common unisex, handicap accessible restroom.

HVAC

All HVAC condensation and purge drains (such as "Mastercool" units) shall be plumbed to the sanitary sewer system.

Paint

Provide all uncoated structural and miscellaneous steel with one shop coat of manufacturer's standard primer.

2.3.2 National Fire Protection Association (NFPA)

Aircraft Hangar Groups

All hangars shall meet all codes and standards in the NFPA 409 Standard on Aircraft Hangars.

2.3.3 Outdoor Lighting

General

All outside area lighting shall meet all codes and standards.

No light fixtures shall be aimed in a manner that could hinder aircraft or ground vehicle operations.

2.3.4 UG Utilities

Blue Stake

The tenant shall schedule all Blue Stakes, which shall include TAA. TAA may have TAA/FAA/ANG/Tenant owned facilities located.

2.3.5 Fencing & Gates

General

TAA Security Fence/Security Gate Standard includes guide specification & details for this type of fence.

A current copy can be requested to TAA, Christine Duval, P&D Design & Construction Secretary, 520-573-4867.

2.3.6 Addressing

General

All addressing on Airport shall be through TAA, Marilyn Ostrihon, P&D Environmental Planning Secretary, 520-573-5116.

2.3.7 Crane Use

General

Notification of utilizing cranes at locations that would affect airspace landing/departure procedures is imperative to the safe operation at TIA. Tenants shall follow the TAA **Procedures for Notification of Crane Use at Airport or within Airspace of Airport** for all cranes used on airport or within 4 miles of airport.

A current copy can be requested to TAA, Christine Duval, P&D Design & Construction Secretary, 520-573-4867.