

City &
County of Denver
Denver International Airport

Tenant Development Guidelines

1 & 2

2010 REVISIONS

Volumes 1 and 2

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TENANT DEVELOPMENT GUIDELINES
MANUAL 1
POLICIES AND PROCEDURES

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INTRODUCTION

The Tenant Development Guidelines (TDG's) are manuals prepared by the Denver International Airport (DIA) Department of Aviation to help assist Tenants in developing the design and construction of their facilities or subsequent modifications to their facilities. The Guidelines consist of two manuals. The first manual outlines instructions, policies and procedures for developing or modifying Tenant Facilities at the DIA. The second manual provides general design guidelines and criteria the Tenant is expected to comply with in developing or modifying their facilities. This manual is a supplement to the DIA Design Manuals and is not intended to replace them.

The TDG's were conceived and written to be general in nature. Tenants shall become familiar with the documents and shall be responsible for remaining current on revisions to these documents. The TDG's are considered to be dynamic in nature and may change from time to time; revisions will be available upon request from DIA.

In all cases, Tenants are encouraged to establish on-going communications with DIA Department of Aviation during their design and construction phases to ensure their facilities comply with all of the appropriate design standards and criteria.

While activities posing potential threats to human health and the environment are unavoidable when operating an airport, good environmental management can reduce the risk and prevent harm. DIA's Environmental Policy, found on the World Wide Web www.flydenver.com/, illustrates DIA Management's commitment to environmental protection, continual improvement, and sustainability in all aspects of airport business and operations. DIA Rule and Regulation 180 overviews DIA's environmental program and summarizes regulatory requirements which must be followed by all tenants, employees, vendors, and contractors (DIA business partners) during any activity, including new development/construction, at DIA that may affect the environment. The current version of DIA's Rules and Regulations can be found at <http://www.flydenver.com/biz/index.asp>.

REVISIONS

Date	Remarks
2/1/1996	Original Issue of Volume 1
10/12/04	Modifications to Chapters 3
3/2005	Modifications to Chapters 1,3,5, Appendix A and Appendix B
10/2005	Modifications to Chapters 1,2,3,4,5,6,7,8 and Appendix A. Appendix B deleted
10/2006	Modifications to all chapters
2007	Modifications to chapters 1&3
2009	Modifications to all Chapters and all Appendices

CHAPTER 1 HOW TO GET STARTED

SECTION 101 - GETTING STARTED

101.1 DEFINING THE SCOPE OF WORK

Each Tenant needs to determine their individual needs and requirements for operating their facilities at DIA during the early stages of their design and they need to ensure that the proper utilities and capacities they require can be provided. It shall be the Tenant's responsibility to coordinate with DIA to ensure proper utilities, capacities and all other aspects required to operate their facilities are available.

101.2 INSURANCE REQUIREMENTS

The Tenant shall provide builder's risk insurance during construction and property and liability insurance for completed improvements per the requirements outlined by DIA's Risk Management Division. The Tenant's Design Consultant and Contractor shall comply with these insurance requirements.

101.3 ESTABLISHING MBE\WBE GOALS

The following are guidelines and requirements for the Small Business Opportunity Division (SBOD) at DIA which apply to tenants and concession build-outs in construction and design.

The SBOD has established a dollar threshold on design and construction projects at DIA. In an effort to establish appropriate Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) goal on these projects, the tenant or city project manager for construction and design is asked to contact the DIA branch office of the SBOD and submit at either (303) 342-4380 or (303) 342-2191 to determine current SBOD requirements.

After the MBE\WBE goal has been established, the SBOD will notify the tenant and request the following:

- A. That the tenant is to inform their design consultant or contractor to notify the SBOD the name of their firm, business address, telephone number, contact person and contract amount.
- B. That the SBOD will then provide the design consultant or contractor with the City's directory of certified MBE\WBE firms.
- C. That the consultant or contractor will need to submit a "Letter of Intent" for each MBE\WBE firm they intend to utilize.

If the project goal is not met, the design consultant/ contractor will be required to submit documentation of efforts made to meet the project goal. If the SBOD determines that a good faith effort was made, or that the project goal has been met, a letter of notification indicating that the tenant's design consultant/contractor is responsive to the SBOD requirements will be made to the Project Manager. If the good faith effort is determined to be non-responsive, the DIA Project Manager will be so notified.

SECTION 102 - MONITORING PROGRESS

SBOD will attend pre-construction meetings to review and explain the required SBOD submittals and establish reporting times. All submittals by the contractors must be made prior to issuance of "Notice to Proceed".

In addition to the MBE\WBE goal program SBOD monitors workforce goals or Equal Employment Opportunity (EEO) goals on all construction projects. The goals have been established at 21.7% for minorities and 6.8% for women. These goals will not change from project to project but rather will be consistently monitored for adherence on a monthly basis. In addition a Diversity Plan or policy statement is required of all contractors. If subcontractors do not have such a plan they can become signatory to the prime contractor's Diversity Plan.

102.1 SELECTING DESIGN CONSULTANTS

- A. Letter of Intent: The Tenant shall submit a "Letter of Intent" for each MBE\WBE the design consultant intends to utilize.
- B. Prime Consultant's Background Information Form: The Tenant's Prime Design Consultant shall complete a "Prime Consultant's Background Information Form" identifying all first tier subconsultants and suppliers.
- C. Sub-Consultant's Background Information Form: Each subconsultant shall submit a "Subconsultant Background Information Form" if a lower tier subconsultant will be utilized.
- D. Good Faith Efforts - Professional Design: If the project goals are not met, the Tenant/Design Consultant shall submit documentation of efforts made to meet the project goals. If the SBOD determines that a good faith effort was made, or if the project goals have been met, a letter of recommendation to approve the Design Consultant shall be made to the Manager of Aviation. If the good faith effort is determined to be unresponsive, the SBOD shall recommend that the Design Consultant not be approved. The Tenant shall repeat the process until approval is achieved.
- E. Letter of Recommendation: After the Manager of Aviation has approved the SBOD's recommendation, a copy shall be provided to the Tenant, the DIA Maintenance and Engineering Project Manager, and to the Airport Property Office.
- F. Performance of Tenant's Work:
 1. The Tenant shall engage a qualified architect/engineer, licensed in the State of Colorado, in the preparation of Tenant's design, working drawings, calculations, specifications and construction contract documents. The Tenant's Design Consultant shall meet any MBE\WBE participation goals as set forth in the Tenant's Concession Agreement and as established by the SBOD.
 2. DIA shall provide the Tenant with a complete list of design and engineering consultants who participated in the design of the base building. The Tenant, at its option, may contact such consultants to retain their services.

102.2 REVIEWING DESIGN PARAMETERS

General

The Tenant Design Guidelines are general in nature and do not address every type of condition or detail individual tenants may encounter in their individual areas. Tenants are therefore encouraged to develop an on-going review process during the early design stages with the DIA Maintenance and Engineering Division to determine specific design criteria and conditions which are acceptable to DIA.

Tenants should be prepared to discuss individual design concerns not addressed in the TDG's when they meet with the DIA Maintenance and Engineering Project Manager at the Pre-Design Meeting.

In addition, all new development or renovation projects require an environmental review by DIA Environmental Services in order to evaluate potential environmental aspects and impacts and to provide a guidance document for the DIA PM on environmental planning and permitting requirements. The appropriate Environmental Guidelines (EGs) can be found at www.flydenver.com.

It is imperative that the Tenant develops a full understanding of what the base building design calls for before any design work is started. Although DIA intends to provide basic functional systems (i.e., mechanical, lighting, fire protection, etc.) for the Tenant to connect to, DIA does not guarantee that all tie-in points will be within the Tenant's leased area. If the Tenant needs to tie into DIA's systems at a location beyond the Tenant's leased area, such location shall be as approved by the Airport, and at the expense of the Tenant. All such modifications shall be designed by the Tenant's Designers at the expense of the Tenant.

Airport Improvements

"Food & Beverage," "Retail" and "Service" Tenants should contact DIA Maintenance and Engineering Division to verify which of the following DIA intends to provide: the basic building structure, structural finished floor, HVAC primary duct, electrical supply panel at electrical distribution room; water and sanitary sewer within the building utility corridor, and spine-type communication cable tray. The tenant is to provide a dust-tight, secure construction separation wall between any public space and the tenant's leased area. (See Manual 2 for construction requirements.)

Tenant Improvements

The Tenant shall provide all finishes including, but not limited to, walls, floors, signage, ceilings, counter shelving, cabinets and display cases. In addition, the Tenant shall be responsible for connecting into DIA's main smoke exhaust, heating, and cooling air distribution systems and if ductwork needs to be extended beyond the Tenant's lease in order to properly tie into these systems it shall be the Tenant's responsibility to provide such connections, at their expense, and to provide any and all ductwork and ductwork extensions and related controls for air distribution within the lease area, and all lighting, power, fixtures and wiring, accessories, panels and metering required to bring power from the main electrical panel to the lease area. In addition, if required and approved in writing by DIA for operation, all water piping, and drainage facilities shall be the responsibility of the Tenant.

Food Prep Concessionaires shall provide all cooking equipment & fixtures and perform all necessary building modifications necessary to meet the Denver Building Code, Health and Hospitals requirements.

All improvements must conform to DIA Design Standards and TDG's and must be approved in writing by DIA prior to installation.

Airport Provided Improvements for Tenants

Improvements provided to Tenants vary depending upon type and location of the Tenant's facility. Information regarding existing conditions and improvements is available from the DIA Maintenance

and Engineering Project Manager.

END OF CHAPTER 1

CHAPTER 2 GETTING DESIGNS APPROVED

SECTION 201 - EXISTING CONDITIONS

201.1 BASE BUILDING DRAWINGS AND SPECIFICATIONS

Record Drawing and Specifications for completed construction for Denver International Airport (DIA) work are available for inspection in the DIA Maintenance and Engineering Division Office, Airport Office Building, from 9:00 am through 4:00 pm, Monday through Friday by appointment.

DIA Maintenance and Engineering Division
Office Airport Office Building
Denver International Airport
8500 Pena Blvd.
Denver, CO 80249

Questions and requests for clarification regarding these Base Building Drawings and Specifications should be directed to the Tenant's DIA Maintenance and Engineering Project Manager.

Drawings and Specifications may not reflect as-built conditions and it shall be the responsibility of the Tenant and the Tenant's Consultants to verify current documents to determine actual conditions that will be encountered during the construction of their facilities.

SECTION 202 - DESIGN REVIEWS

202.1 TENANT'S DESIGN AND APPROVALS

The DIA Department of Aviation requires prior written approval for all Tenants' design and Construction Work. The Tenant shall comply with the Submittal Requirements, as set forth within this manual and within the period of time, if any, specified in the Tenant's Agreement.

202.2 DESIGN PROCESS - GENERAL

The Tenant's Design Consultant Team may include licensed and unlicensed subconsultants; however, all Architects and Engineers on the team must be licensed in the State of Colorado. The Design Process will consist of three (3) separate phases: the Schematic Design Phase, the Design Development Phase and the Construction Documents Phase. Depending on the Tenant's scope of work and complexity, not all Tenants will have to submit design documents for every phase. The DIA Maintenance and Engineering Division will make this determination regarding submittal requirements, including schedule and numbers of copies per submittal prior to the start of Design.

The Tenant Design Process is an evolutionary process of drawing research, analysis and problem synthesis. The Tenant's Design Consultant should attempt to develop a strong program of wants and needs reconciled to the budget and schedule before any concept design begins. Project delivery approach must be considered early in the initial phases of design as well since this decision will drive design decisions. The tenant should consider fast-track multi-prime construction contracts or design-build ventures only where applicable.

The Tenant will be responsible for ensuring that the contract drawings and specifications are

submitted to DIA by the date, if any, specified in the Tenant's Agreement.

202.3 SCHEMATIC DESIGN PHASE (30% COMPLETE)

The Schematic Design Phase includes an initial design orientation meeting with the Tenant, DIA Environmental Services and DIA Maintenance and Engineering Project Manager after which the Tenant's Design Consultant analyzes the project requirements, budget, Tenant Development Guidelines Manual and program. From these parameters, the Designer prepares schematic design studies consisting of drawings and other documents illustrating the scale and relationships of project components, including such considerations of materials, furnishings, space planning, merchandising and systems as may be appropriate at this time. Upon approval by the DIA Department of Aviation of the Schematic Design Documents and a preliminary cost estimate submitted by the Design Consultant, this phase of service is complete.

202.4 DESIGN DEVELOPMENT (60% COMPLETE)

The Design Development Phase includes the preparation of more detailed drawings and other product and systems data relating to the Premises appearance, millwork, storefronts, security grilles, furnishings, mechanical system extensions, electrical systems, plumbing fixtures and distribution, food service preparation equipment outline specifications, telecommunications systems, intercom systems, fire alarm system extensions, fire protection system extensions, construction materials and finishes, and other essential project components. The Design Consultant shall establish a bar chart schedule and further refine project delivery planning by considering accommodation for long lead procurement and fabrication items and fast-tracking of separate prime contracts (where applicable). The Design Consultant will also update its preliminary construction cost estimate, provide a construction bar chart schedule, and submit a finish sample board. When the DIA Maintenance and Engineering Project Manager approves these documents, this phase of service is complete.

202.5 CONSTRUCTION DOCUMENTS (100% COMPLETE)

The Construction Documents Phase includes the preparation of contract drawings, construction contract documents, general conditions, special conditions and technical specifications all describing in technical detail the construction contract scope of work to be performed - materials, equipment, systems, workmanship, interfaces, furnishings, fixtures, cores, fire ratings, exiting studies and finishes required for architectural, mechanical, electrical, plumbing, telecommunications, fire protection, security/CCTV, premises wiring, etc. - and related work, utility connections and extensions and special equipment. The Design Consultant also assists the Tenant in preparation of the information for bidders, bidding and proposed contract forms, general conditions of the contract, and special conditions covering responsibilities during the construction phase. The Contract Documents shall include all required DIA and City standard documents and forms. The Tenant shall coordinate this requirement with the DIA Maintenance and Engineering Project Manager. The Design Consultant shall revise and update the cost estimate and construction schedule prepared in the previous phase.

When the Design Consultant has prepared the contract drawings, specifications and other contract documents and has assembled all the bidding documents and the Tenant has received approval from the DIA Department of Aviation and all other applicable City Agency's approvals and all review comments have been incorporated into the documents, this phase is complete. All City Agency review comments must be incorporated prior to bidding or as an addendum. The Tenant shall be responsible for paying any and all permitting fees. All contract drawings and specifications must be stamped "Approved" or "Approved as Noted" (with noted corrections) prior to bidding the documents or letting a direct construction or procurement contract.

202.6 CONTRACT SUBMITTALS:

202.7 CONSTRUCTION SUBMITTALS:

SECTION 203 - AMERICANS WITH DISABILITIES ACT

203.1 GENERAL

DIA shall be responsible for complying with ADA requirements and providing auxiliary aids and services in public common areas and for modifying policies applicable to Tenants.

The Tenant shall be responsible for design compliance, auxiliary aids and services, and modification of policies within its own place of public accommodation or Premises.

Tenants must comply with all applicable ADA requirements.

END OF CHAPTER 2

CHAPTER 3 PREPARING FOR CONSTRUCTION

SECTION 301 - ESTABLISHING MBE\WBE GOALS-CONSTRUCTION

301.1 GENERAL

The Tenant shall be asked to complete the "Goals Committee Information Form" for Construction and submit it to:

Small Business Opportunity Division (SBOD)
216 16th Street, Suite 1550
Denver, CO 80202
Telephone: (303) 640-3808 or 640-4105
Telefax: (303) 640-4019

The Tenant shall coordinate with the Small Business Opportunity Division (SBOD) as required to establish MBE\WBE goals for project construction.

After goals have been established, all Tenant contact shall be with:

Small Business Opportunity Division (SBOD)
Denver International Airport
AOB, Room 7810
Denver, CO 80249
Telephone: (303) 342-2200
Telefax: (303) 342-2190

The SBOD shall provide the Tenant with the approved MBE\WBE goals and a list of current certified MBE\WBE firms. This notification shall be made one week after the Goals Committee presentation.

Once a contractor has been selected, the Tenant shall notify the SBOD in writing identifying the name of the contractor, business address, telephone number, contact person and the contract amount.

The Tenant shall submit a "Letter of Intent" for each MBE\WBE the contractor intends to utilize.

The Prime Contractor shall complete a "Prime Contractor's Background Information Form," to identify all first tier subcontractors and material suppliers.

Each subcontractor shall submit a "Subcontractor's Background Information Form," to identify lower tier subcontractors and material suppliers.

If the project goals are not met, the Tenant/Contractor shall submit documentation of efforts made to meet the Project goals. If the SBOD determines that a good faith effort was made, or if Project goals have been met, a letter of recommendation to approve the Tenant's contractor shall be made to the DIA Director of Aviation. If the good faith effort is determined to be unresponsive, the SBOD shall recommend that the contractor not be approved.

After the Manager of Aviation has approved the SBOD's recommendation, a copy shall be provided to the Tenant, the DIA Maintenance and Engineering Project Manager and to the Airport Property Office.

301.2 MBE AND WBE PROJECT GOAL COMPLIANCE, GOOD FAITH EFFORTS, REPORTING REQUIREMENTS AND FORMS

Design and construction contracts entered into by the Airport's tenants and concessionaires for the design and construction of facilities on Airport property are subject to Article III, Divisions 1 and 3 of Chapter 28 of the Denver Revised Municipal Code ("MBE and WBE Ordinance") and Rules and Regulations adopted thereunder by the Director of Denver's Division of Small Business Opportunity (DSBO).

The MBE and WBE Ordinance directs the DSBO Director to establish a project goal for expenditures on Airport design and construction services work.

Project goals must be met with certified MBE and SBE participants or by demonstrating a sufficient good faith effort under the MBE and WBE Ordinance. To comply with good faith effort requirements the proposer must solicit 100% of the firms certified as MBEs and WBEs for the categories of work which are to be performed under the contract.

Each Airport tenant and concessionaire must comply with the MBE and WBE Ordinance in soliciting and entering into agreements with design firms and construction contractors who will develop tenant and concessionaire facilities upon the Airport. Failure to comply with the requirements of the MBE and WBE Ordinance will be cause for termination of the lease or concession agreement with the City.

Copies of the MBE and WBE Ordinance and the Rules and Regulations are available from the Division of Small Business Opportunity.

301.3 MBE AND WBE ORDINANCE COMPLIANCE BY MEETING THE PROJECT GOALS

Airport tenants and concessionaires who seek to comply with the MBE and WBE Ordinance requirements by meeting the Project goals must require the following from their proposed designers and contractors:

- A. Each bidder and proposer for design or construction work must submit with its bid or proposal a list of proposed MBE and WBE firms, attaching such list to the form called "Commitment to Minority/Women Business Enterprise Participation" set forth below. This list must contain the following information: the name, the address, a brief description of the supply/service to be performed, the committed level of participation expressed as a percentage and, as applicable, an actual dollar amount and any other required information for each MBE and WBE, of any tier, that the bidder or proposer intends to utilize on its Project. Only the MBEs and WBEs identified on the list and the participation listed at the time the bid or proposal is submitted will be considered in determining whether the bidder or proposer has met the MBE and WBE goal. Subsequent additions, revisions or corrections to participation will not count towards meeting the Project goal.
- B. MBE and WBE prime consultants and prime contractors may count towards the project goal only the value of the work that they self-perform. In a joint venture with an MBE or WBE only the portion equal to the distinct and clearly defined scope of

work performed by the MBE or WBE counts toward the project goal.

- C. All MBE and WBE firms listed within the bid or proposal document must be properly certified by the City on or before the date of bid or proposal submission in order to count towards the goal. A copy of the current certification list is available from the Division of Small Business Opportunity, 201 W. Colfax, Webb Bldg., Department 907, Denver, Colorado 80202, phone 720-913-1714, or on the website at www.flydenver.com/Business. Bidders and proposers are required to use this list to assist in locating MBEs and WBEs for the services/supplies required on the Project. Changes may be made to the list at anytime by DSBO, and the most current copy of the certification list must always be used in preparing a bid or proposal. MBE and WBE certification does not, however, constitute a representation or warranty by the City as to the qualifications of any listed MBE and WBE firm.
- D. In accordance with the MBE and WBE Ordinance, DSBO will evaluate each bid and proposal to determine if it meets the MBE and WBE requirements. DSBO shall base its determination solely on the information provided in the bid or proposal document.

In addition to the above requirements, each bidder and proposer is required to submit an "MBE and WBE Letter of Intent," in form as set forth below, for each MBE and WBE firm listed in its bid or proposal document. An MBE and WBE prime consultant or prime contractor does not need to submit a Letter of Intent. However, it must list itself and its level of participation on the page it has designated for MBE and WBE participation. Each MBE and WBE Letter of Intent shall be accompanied by a copy of the City's MBE and WBE certification letter for the named MBE and WBE. Bidders and proposers are urged to carefully review each Letter of Intent before submission to ensure that it is properly completed and signed.

301.4 MBE AND WBE ORDINANCE COMPLIANCE BY DEMONSTRATING A GOOD FAITH EFFORT

If seeking to comply with the MBE and WBE Ordinance by demonstrating a good faith effort, bidders and proposers should consider the following:

If any bidder or proposer is unable to meet the designated project goal and elects to present a good faith effort in lieu of or in addition to attempting to meet the goal, that bidder or proposer must submit, with its bid or proposal, a detailed statement, including supporting documentation, demonstrating its good faith efforts to meet the established MBE and WBE goal in accordance with the MBE and WBE Ordinance.

In the event a bidder or proposer fails to meet the Project goal and cannot show to the DSBO Director's satisfaction that it made an adequate good faith effort to meet the goal, the bid or proposal shall be considered non-responsive.

The detailed statement of good faith efforts shall address each of the following items as itemized in the MBE and WBE Ordinance:

- A. A specific response and verification for each of the following good faith effort categories, as further defined by rule or regulation. In addition, a bidder or proposer may supplement its responses to include any additional information the bidder or proposer believes may be relevant. Failure of a bidder or proposer to demonstrate adequate good faith efforts as to any one of the following categories shall render the overall good faith showing insufficient and the proposal non-

responsive. The required MBE and WBE good faith efforts are set forth below:

1. If pre-proposal meetings are held by a bidder or proposer at which MBEs and WBEs may be informed of subconsulting or joint venture opportunities under a proposed design or construction services contract, attendance at such pre-proposal meetings is not mandatory; however, proposers are responsible for the information provided at these meetings.
2. The bidder or proposer must solicit through all reasonable and available means the interest of all MBEs and WBEs certified in the scopes of work of the contract within sufficient time to allow such MBEs and WBEs to respond to the solicitation, including appropriate steps to follow up initial solicitations.
3. The bidder or proposer must select portions of the services of the contract to be performed by MBEs and WBEs in order to increase the likelihood that the project goal will be achieved, reasonably consistent with industry and professional practice, even when the bidder or proposer would otherwise prefer to perform these services with its own staff.
4. The bidder or proposer must provide MBEs and WBEs with timely and adequate information and access, at a clearly stated location, to the plans, specifications and requirements of the contract, including insurance requirements, if any, to assist them in responding to a solicitation.
5. The bidder or proposer must negotiate in good faith with interested MBEs or WBEs and provide written documentation of such negotiation with each such MBE or WBE firm.
6. For each MBE or WBE contacted, the bidder or proposer must supply a statement giving the reasons why the bidder or proposer and the MBE or WBE did not succeed in negotiating a joint venture, subcontract, subconsulting agreement, supplier, manufacturer, manufacturer's representative, broker or joint venture agreement, as applicable.
7. The bidder or proposer must provide verification that it rejected each non-utilized MBE and WBE because the MBE or WBE was not qualified. Such verification shall include a verified statement of the bids, proposals or price quotes received from all interested parties, whether or not they are MBEs or WBEs. The verification shall include a statement giving the bidder or proposer's reasons for its conclusions. A bidder's or proposer's industry or professional standing or group memberships may not be the cause of rejection of an MBE or WBE firm. A bidder or proposer may not reject an MBE or WBE firm as being unqualified without sound reasons based on a reasonably thorough investigation and assessment of the MBE's or WBE's capabilities and expertise.
8. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining alternative payment or performance guarantees or insurance as required by the City or by the bidder or proposer, provided that the bidder or proposer need not provide financial assistance toward this effort.
9. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining necessary and competitively priced equipment, supplies, materials or related

assistance or services for performance under the contract, provided that the bidder or proposer need not provide financial assistance toward this effort.

10. The proposer must use the DSBO MBE/WBE directories to identify, recruit and place MBEs and WBEs.

The MBE and WBE Ordinance requires that Airport tenants and concessionaires, as well as their contractors and consultants, agree that they are committed to meeting either the MBE and WBE participation goal or the MBE and WBE participation set forth in their statements of good faith efforts. This commitment must be expressly indicated on the “Commitment to Minority Business Enterprise and Women Business Enterprise Participation” form.

301.5 MBE AND WBE ORDINANCE REQUIREMENTS DURING CONTRACT PERFORMANCE

Tenants and concessionaires are responsible for ensuring that their designer and contractor comply with the MBE and WBE Ordinance in performing the services or supply described in the design or construction contract.

Failure to comply with these provisions may constitute cause for rejection of a bid or proposal or subject the bidder or proposer to sanctions.

- A. The designer or contractor must maintain the designated MBE and WBE goals or good faith commitments throughout the life of the Agreement.
- B. The bidder or proposer must establish and maintain records and submit regular reports, as required, which will allow the City to assess progress in satisfying the MBE and WBE participation goal.
- C. Designer and contractors must immediately inform DSBO, in writing, of any agreed upon increase or decrease in the scope of work, regardless of whether such increase or decrease in scope of work has been reduced to writing at the time of notification.
- D. In the event amendments, change orders or other Agreement modifications are issued under the Agreement and such changes result in an increase in scope of services in an Agreement, the bidder or proposer must submit such modifications to the Division of Small Business Opportunity. Those changes that cannot be performed by existing project subconsultants or by the consultant shall be subject to goals for MBEs and WBEs equal to the original goals on the Agreement. The bidder or proposer must satisfy such goals as respects to such changed scope of work by soliciting new MBEs and WBEs or must show each element of a modified good faith effort as required by the MBE and WBE Ordinance. The bidder or proposer shall supply to the DSBO Director for approval, the modified good faith effort documentation as required in the Ordinance.

These instructions are intended only to generally assist the bidder or proposer in preparing and submitting a compliant bid or proposal. Should any questions arise regarding compliance under specific circumstances, bidders and proposers must consult Divisions 1 and 3 of Article III of Chapter 28, D.R.M.C., and its corresponding Rules and Regulations, and are encouraged to contact the designated DSBO representative for the project at (303) 342-2191.

SECTION 302 - SELECTING CONTRACTORS

302.1 CONTRACTOR ACCEPTANCE

The Tenant's contractor, and subcontractors performing the following work: mechanical, electrical, fire protection, and controls, must be accepted in writing by the DIA Department of Aviation before such work commences. The reasons the DIA Department of Aviation may use for not accepting a contractor include, but are not limited to, the following:

- A. Default on a contract within the last three (3) years.
- B. Default on a contract which required that a surety complete the contract under payment or performance bonds issued by the surety.
- C. Debarment within the last five (5) years by a public entity or any organization which has formal debarment proceedings.
- D. Significant or repeated violations of Federal Safety Regulations (OSHA).
- E. Failure to have the required City or Colorado licenses to perform the work described in the contract.
- F. Conviction within the last five (5) years of the contractor or its principal owners or officers of an offense involving fraud or racketeering.

Before the DIA Department of Aviation issues a Notice to Proceed, the Tenant shall submit to the DIA Maintenance and Engineering Project Manager a sworn statement signed by an officer or principal of the Tenant certifying that the contractor has submitted its qualifications and has investigated the qualifications of its proposed subcontractors and has identified the existence of any of the problems listed above or certified to the best of its knowledge and belief the problems listed do not exist.

The Department of Aviation does not intend that the above be interpreted as creating any contractual relationships between DIA and any contractor or contractor. Neither does the Department of Aviation intend that its acceptance of a subcontractor will create in that contractor a right to any contract nor shall said acceptance relieve the Tenant's contractor of its responsibilities for the work of any subcontractor.

302.2 TENANT'S CONTRACT MADE IN COLORADO

The tenant-contractor agreement between the Tenant and the Tenant's contractor shall be deemed to have been made in the State of Colorado and shall be governed, interpreted, and construed in accordance with the laws of the State of Colorado. The Tenant and its contractor shall at all times comply with the provisions of the Charter, Ordinances, and applicable Rules and Regulations of the City and County of Denver; laws, rules and regulations of the State of Colorado; applicable Executive Orders and fiscal rules of the City; Federal Laws and Federal Rules and Regulations which in any manner limit, control, or apply to the actions or operations of the Tenant, Tenant's contractor, subcontractors, subordinate subcontractors of any tier or their employees, agents or servants engaged upon the Work or affecting the materials supplied to them or by them.

SECTION 303 - BONDS

303.1 CONTRACTORS BONDS

Prior to the issuance by the Department of Aviation/Planning and Engineering Division of a Notice to Proceed with Tenant Improvements, the Tenant's contractor shall deliver to the Department of

Aviation and maintain in effect throughout the period of construction, a construction Performance Bond and a Labor and Material Payment Bond each in a sum not less than 100% of the construction contract amount.

Said bonds shall guarantee prompt and faithful performance of the said contract and prompt payment by the Tenant's contractors to all persons supplying labor, materials, team hire, sustenance, provisions, provender, supplies, rental machinery, tools and equipment used directly or indirectly by said contractor, subcontractor and suppliers in the prosecution of the Work provided for in said owner-contractor agreement and shall protect the City from any liability, losses or damages therefrom.

The Payment Bond and the Performance Bond shall name the Tenant as the Obligee with the City and County of Denver being named on the Dual Obligee Rider. The bonds shall be on the City's standard form.

303.2 TENANT PAYMENT BOND

Prior to the issuance by the DIA Department of Aviation of a Notice to Proceed with Tenant Improvements, the Tenant shall provide the City and County of Denver with a Payment Bond in a sum not less than 100% of the construction contract amount. Said Payment Bond shall guarantee prompt and faithful payment of the said owner-contractor agreement by the Tenant directly to the Tenant's contractor and shall be on the City's standard form. Copies of form can be obtained from the DIA Tenant Coordinator.

303.3 ASSIGNMENT OF BANK ACCOUNT

The Tenant and/or Tenant's contractor may provide to the City and County of Denver in lieu of a Payment Bond and Performance Bond an Assignment of Bank Account for the full amount of the construction contract amount. This Assignment of Account shall be in full force as long as said agreement is in effect between the Tenant and/or Tenant's contractor and the City and County of Denver, and until the DIA Department of Aviation declares the Assignment of Account null and void.

303.4 CASH, CERTIFICATE OF DEPOSIT, OR CERTIFIED CHECK

The Tenant and/or Tenant's contractor may deposit to the City and County of Denver in lieu of a Payment and Performance Bond a Certified Check, Cash, or a Certificate of Deposit for the full amount of the construction contract amount. The deposit shall be held by the City and County of Denver for as long as the said agreement is in effect between the Tenant and/or Tenant's contractor and the City and County of Denver, and until the DIA Department of Aviation declares the deposit be returned.

303.5 SURETY COMPANY'S FINANCIAL RATING REQUIREMENT

All bonds shall be issued by a surety company licensed to transact business in the State of Colorado and satisfactory to and approved by the DIA Department of Aviation. If a bond is executed by an attorney-in-fact of the surety, a power of attorney must be attached to the bond. The surety company must have a rating with the United States Treasury Department of an A-, VIII Financial Rating or above.

SECTION 304 - PERMITS AND SITE INSPECTIONS

304.1 PERMITS AND LICENSES

The Tenant, Tenant's contractor, and subcontractors and suppliers of any tier shall obtain and pay for all required licenses and certificates. The Tenant, Tenant's contractor, subcontractors and

suppliers shall obtain all permits, approvals and development agreements required by the City including but not limited to, liquor licenses, Dept. of Health & Hospitals permits, Building Permits and approvals to tap domestic water lines and to access City's electrical distribution panels. The Tenant or Tenant's Design Consultant is responsible for submitting the Construction Contract Drawings and Specifications to the City's Building Inspection Division and the City Department of Health & Hospitals for their plan reviews and for receiving approvals thereon sufficient to allow the Tenant's contractor to obtain the necessary permits. Charges for permits, approvals, tap fees, and development agreements required by the City will be at the Tenant's expense.

The Tenant's contractor before commencing Work, shall verify all governing dimensions and field conditions at the Work site, and shall examine, to the extent reasonable, all adjoining work and systems and substrates on which its Work is in any way dependent according to the Approved Construction Contract Documents, and no disclaimer of responsibility for defective or nonconforming adjoining work will be considered unless written notice of same attached with the Acceptance of Premises Form has been filed by the Tenant's contractor, and agreed to in writing by the DIA Department of Aviation before the Tenant's contractor begins any part of the affected Work.

304.2 VERIFICATION OF GOVERNING DIMENSIONS

The Tenant's contractor before commencing Work, shall verify all governing dimensions and field conditions at the Work site, and shall examine, to the extent reasonable, all adjoining work and systems and substrates on which its Work is in any way dependent according to the Approved Construction Contract Documents, and no disclaimer of responsibility for defective or nonconforming adjoining work will be considered unless written notice of same attached with the Acceptance of Premises Form has been filed by the Tenant's contractor, and agreed to in writing by the DIA Department of Aviation before the Tenant's contractor begins any part of the affected Work.

304.3 REVIEWING CONSTRUCTION PARAMETERS

The Tenant Development Guidelines are general in nature and do not address every type of condition or detail individual tenants may encounter in their individual areas during construction. Tenants are therefore encouraged to develop an on-going review process during the early construction stages with the DIA Maintenance and Engineering Project Manager to determine specific construction criteria and conditions which are acceptable to DIA.

Tenants should be prepared to discuss individual construction related concerns not addressed in the Tenant Development Guidelines when they meet with the DIA Maintenance and Engineering Project Manager at the Pre-Construction Meeting.

SECTION 305 - NOTICE TO PROCEED

305.1 GENERAL

Documents to be Furnished to The City Prior to Issuing Notice To Proceed

The following documents must be supplied to the DIA Maintenance and Engineering Project Manager prior to commencement of construction and are to remain current as Tenant Work proceeds.

- A. Copy of signed Tenant/Contractor Agreement with all addenda incorporated.
- B. Sworn statement listing contractors and subcontractors at all tiers, description of Work and the contract amount(s).

- C. Fully executed concession agreement between DIA and Tenant.
- D. All Certificates of Insurance on the City's form for Tenant's general contractor and subcontractors with the minimum aggregate limits stated herein on the City's form along with Additional Named Insureds as specified herein.
- E. A record copy of the "Approved" or "Approved as Noted" construction contract documents with all addenda and forms incorporated.
- F. Contractor's Performance Bond on the City's form in amount as specified herein. Contractor's Payment Bond on the City's form in the amount specified herein. Tenant Payment Bond on the City's form in the amount specified herein. Building Permit and other required permits and approvals for construction. Detailed Bar Chart Schedule of Construction.
- G. Copy of all Permits and Permit Documents including CADD files and WP files

305.2 SAFETY PROGRAMS

Prior to the start of construction, the Tenant's contractor shall provide the DIA Maintenance and Engineering Project Manager with a written safety plan and a statement signed by the Tenant contractor's superintendent that all of its employees and all subcontractor employees of any tier have been briefed on and have read the safety plan. In addition, the Tenant's contractor shall include on the document transmitting its certified payrolls a statement that all employees listed on the payrolls have been briefed on, have received copies of, and have read the safety plan. The Tenant's contractor shall provide the amended list within seven (7) calendar days after new employees have been assigned. The Tenant's contractor shall keep on file for the DIA Maintenance and Engineering Project Manager's review a signed and drafted statement from each employee that he or she has been briefed on and has read and understands the safety plan. DIA Safety will monitor contractor's safety performance.

305.3 ACCEPTED DOCUMENTS

Tenant's contractor(s) shall not proceed with any construction or fabrication on the Work site until all of the Tenant's Construction Contract Documents are complete and marked "Approved" or "Approved as Noted" by the DIA Department of Aviation. All Tenant construction must be performed in strict accordance with the "Approved" or "Approved as Noted" contract drawings only. Any material modifications, change orders, field sketches, addenda or change directives which modify the Approved Construction Contract Documents must be transmitted and reviewed by the DIA Maintenance and Engineering Project Manager.

305.4 BEGINNING, PROGRESS AND TIME OF COMPLETION

A written Notice to Proceed will be issued by the Manager of Aviation and the Tenant shall commence Work within ten (10) calendar days of the Notice to Proceed. Thereafter, the work shall be executed at such place or places as the Approved Construction Contract Documents require and shall be completed within the time set forth in the Tenant's Agreement.

SECTION 306 - STANDARD TECHNICAL SPECIFICATIONS FOR TENANT CONSTRUCTION

306.1 STANDARD SPECIFICATIONS

The Denver International Airport (DIA) Standard Specification for Tenant Construction is a document hereby incorporated by reference into the Denver International Airport Tenant Development Guidelines and shall be considered part of the Tenant Development Guidelines

(TDG's), although bound by a separate cover from the TDG's. It shall be the responsibility of the Contractor to obtain copies of this specification from the Tenant prior to submitting his/bid/contract amount to the Tenant.

The above referenced specifications adopted and approved by the Airport at the time bids are received shall be the version the Contractor shall be bound to unless otherwise approved by the DIA Project Manager. In the case where the contract is executed without a formal bid process the then version current on the date the contract is executed shall be the version the Contractor shall be bound to. The above referenced specifications shall be considered supplemental to all other contract documents. It shall be the Contractors responsibility to forward in writing for response discrepancies between these specifications and any other contract documents to the DIA Project Manager prior to execution of the Contract. In no case shall any section of this specification or part be considered waived or modified unless specifically noted in writing by DIA's Project Managers prior to execution of the Contract.

END OF CHAPTER 3

CHAPTER 4 CONSTRUCTION

SECTION 401 - GENERAL CONDITIONS

401.1 LINE OF AUTHORITY

The DIA Maintenance and Engineering Project Manager will transmit written responses or other communications to the Tenant and copy the contractor's superintendent. The Tenant's contractor shall, by a letter to the DIA Maintenance and Engineering Project Manager, designate (by name) an assistant superintendent to receive oral and written field communications through the Tenant when the superintendent is away from the Work site and to act as the superintendent's designated representative. During such time that the superintendent may be temporarily absent, an assistant superintendent shall be authorized to act immediately on orders or instructions issued by the Tenant.

401.2 PROJECT CONTROL

If any differences or conflicts between the Tenant's contractor and other contractors arise which they cannot resolve and which could delay their work, the DIA Maintenance and Engineering Project Manager may recommend the Tenant's contractor and other contractors follow a course of action he determines would mitigate or eliminate the delay and which best serves the interests of DIA and the Tenant.

401.3 LAWS AND CODES

If the Tenant's contractor or any of its subcontractors of any tier knows or reasonably should have known by virtue of common knowledge in the construction industry that any of the Approved Construction Contract Documents are at variance with applicable laws, statutes, building codes, regulations, or ordinances, in any respect, the Tenant's contractor shall promptly notify the DIA Maintenance and Engineering Project Manager and Tenant in writing, and make any necessary changes as directed by the Tenant or its design consultant at the tenant's expense.

401.4 BASE BUILDING & SYSTEM DESIGN MODIFICATIONS

Base Building Design modifications shall be initiated under the authority of a written Change Request. Such modifications will be prepared by the Tenant's Design Consultant and processed by the DIA Maintenance and Engineering Project Manager.

All Change Requests shall follow established current written procedures and shall include narrative explanation of reason for change, a detailed description of all changes, schedule impact, and cost estimate of the proposed change.

401.5 REQUEST FOR BASE BUILDING INFORMATION

The Tenant's contractor shall submit any requests for information or clarification regarding base building construction and systems to the DIA Maintenance and Engineering Project Manager through the DIA Tenant Coordinator. When the DIA responds to such requests for explanation or clarification, it will issue a response which will consist of a written explanation with or without drawings.

The Tenant's contractor shall attempt to answer requests for information from its subcontractors and suppliers. Such requests may be forwarded by the Tenant's contractor to the DIA Maintenance and Engineering Project Manager. If subcontractor requests are forwarded to DIA, the Tenant's contractor shall identify any information or statements in the request which it believes are incorrect and the reasons why.

401.6 SITE CONDITIONS

By executing the owner-contractor agreement the Tenant's contractor represents that it has visited the site, familiarized itself with the local and system conditions under which its Work is to be performed, and correlated its observations with the requirements of the Approved Construction Contract Documents.

401.7 SITE COMMUNICATIONS

If the Tenant or Tenant's Contractor provides a field office, it shall provide on-site communications capabilities during all operating periods for direct communications between and among its field office and supervisory personnel. The radio system shall be submitted for DIA approval as to frequency band availability and proper licensing. On-site antennas, if necessary, shall be labelled as to owner and frequency and shall be located as approved by DIA. In the event that interference occurs between the Tenant contractor's radio system and DIA's or other operating systems (i.e., Front Range Airport, Buckley Field and/or other contractors already on-site), the Tenant's contractor shall be required to modify its system as necessary to remedy such interference.

Project Signs

Under no circumstances, except for safety, will the Tenant's contractor be permitted to post any signs other than those required by the Approved Construction Contract Documents, otherwise allowed by laws (such as permits), or otherwise allowed by the DIA.

401.8 COOPERATION AND MUTUAL RESPONSIBILITY OF CONTRACTORS

Since there may be other DIA contractors, subcontractors, subordinate subcontractors, premises wiring contractors, special system contractors, airline system contractors, other tenant finish contractors and representatives of the City, State and Federal government working within or adjacent to the work site during the performance of the Tenant's work, the Tenant must anticipate in its scheduling, procurement and cost estimating that its Work will be interfered with or delayed from time to time by the acts or omissions of other contractors. The Tenant and its contractor shall fully cooperate and coordinate its Work with DIA and other contractors and subcontractors to the maximum extent reasonably possible to avoid or mitigate any delay or hindrance of each other's work.

In addition to construction in adjacent areas during the Tenant Improvement Work there may be construction within the Tenant's Premises area occurring at the same time as the Tenant's contractor is constructing and the Tenant's contractor shall provide access for this construction.

Tenant contractor coordination may require working off-hours and providing additional temporary lighting and power for such off-hours work at the Tenant's expense.

The Tenant's contractor shall perform all Work in its area(s) to allow DIA contractors to balance, test, adjust, repair and maintain such DIA contractors' work.

The Tenant's contractor shall afford DIA and separate contractors reasonable and safe access to and across the Work site and reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work within or adjacent to the Tenant contractor's Work site, and shall connect and coordinate the Tenant contractor's Work with their work as required by the Approved Construction Contract Documents. DIA may also require that certain facilities and areas be used concurrently by the Tenant's contractor and other persons. If any part of the Tenant contractor's Work depends for proper execution or results upon the work of DIA or of any other contractor, or affects the work of another contractor, the Tenant's contractor shall monitor and keep itself informed of the progress and details of such work of such other

contractor or DIA by attendance at job coordination meetings held by DIA, observation of the Work site, and communication with other contractors with copies to the DIA Maintenance and Engineering Project Manager. The Tenant or its contractor shall promptly report in writing to the DIA Maintenance and Engineering Project Manager apparent discrepancies, defects in such other work that render it unavailable, defective or unsuitable for the Tenant's contractor properly performing the Work. Failure to so promptly report shall constitute an acceptance of the other work as fit, proper and ready for integration with the Tenant's Work except for latent defects.

Any costs caused by defective or ill-timed performance shall be borne by the responsible party.

If the Tenant's contractor, through its acts or omissions, causes loss, damage or delay to the work or property of any separate contractor, subcontractor, or subordinate subcontractor, the Tenant's contractor shall upon due notice from the DIA Maintenance and Engineering Project Manager, promptly attempt to remedy such loss, damage or delay, or otherwise settle with such other contractor or subcontractor by agreement or otherwise.

If another contractor or subcontractor shall assert any claim, bring any action against DIA, or institute a dispute resolution proceeding on account of any delay or damage alleged to have been sustained as a result of the acts or omissions of the Tenant's contractor, DIA shall notify the Tenant and the Tenant shall indemnify the City in accordance with the provisions of the Tenant's Agreement.

401.9 PUBLIC RELATIONS AND ADVERTISING

The Tenant's contractor shall execute the Work in such a manner so as to cause little inconvenience to the public, particularly to tenants of premises adjacent to the Project, as is consistent with good workmanship.

The Tenant's contractor shall obtain the approval of the DIA Maintenance and Engineering Project Manager and notify all other affected contractors at least forty-eight (48) hours before commencing Work which may block access or otherwise cause undue difficulty to occupants or users of property affected, and shall restore such access to a usable condition, or with the DIA's and Tenant's permission, provide replacement access as soon as possible.

If the Tenant's contractor notifies other contractors or other tenants by written notice that utility shut-offs or similar events will occur, a copy of such notices shall be provided to the Tenant, and the DIA Maintenance and Engineering Project Manager before such notices are sent.

The Tenant's contractor and its subcontractors shall not include any reference to the work it performs at DIA in any of its advertising or public relations materials without first obtaining the written approval of the Director of Aviation. All information published shall be factual, and shall in no way imply that DIA endorses the Tenant's contractor or its services or products.

DIA shall have the right to photograph, videotape, film or in any other manner record the progress of the Work at any time and to use such materials for any purpose.

401.10 CLEAN-UP DURING CONSTRUCTION

Tenants are responsible for ensuring that their contractors appropriately store, label, manage, transport, and dispose of construction wastes at an appropriately permitted offsite facility. Disposal of solid waste on DIA property is expressly prohibited.

The Work site and other areas used by the Tenant's contractor shall at all times be kept free of accumulated waste materials, dirt and surplus material. If space is available, the DIA Maintenance and Engineering Project Manager may designate a place on the premises to collect all debris and rejected materials. Removal of the waste material, surplus material, dirt, trash and debris to a suitable licensed landfill must be done on at least a daily schedule or whenever the waste material creates a safety or health hazard or interferes with any contractor's work.

If the work site is not maintained in clean, orderly, and safe condition DIA may, after issuing a written notice to the Tenant, and within twenty-four (24) hours of issuing said notice, have others the clean up work and charge the cost thereof to the Tenant. If more than one contractor was working in the uncleaned area, a proportionate part of the cost will be charged to all the contractors in the area based upon a breakdown determined by the DIA Maintenance and Engineering Project Manager.

401.11 DAMAGES DURING CONSTRUCTION

The Tenant assumes sole responsibility for all damages to the existing facilities, including but not limited to the premises occupied by others, arising from the improvements and remodel work of the Tenant under the Agreement, and will take immediate steps to replace or repair such damages to the satisfaction of DIA and its affected tenants and contractors.

401.12 FREIGHT ELEVATOR

The Tenant and it's contractor(s) may use the designated freight elevators and shall not use passenger elevators for transporting materials to and from the Tenant's Premises. Suitable durable floor and wall coverings shall be provided by the user in the freight elevator cab during each use to protect the cab finishes against damages. All damages to the cab shall be repaired by the user in a timely manner at no charge to DIA.

The Tenant's contractor shall schedule material hoisting slots with the DIA Maintenance and Engineering Project Manager in advance. The tenant shall coordinate its move-in schedule of furnishings, accessories and Tenant provided fixtures with the DIA Maintenance and Engineering Project Manager to allow adequate time slots for move-in of any other building tenants.

Public passenger-only elevator cabs are not available for Tenant contractor or Tenant's use.

401.13 UTILITY SERVICE AND CHARGES

Tenant or Tenant's contractor shall apply for and pay for all utility meters required for its Premises. Utility costs and charges for any services and meters (including temporary service) to the Premises shall be the sole responsibility of the Tenant from the date of Construction Notice to Proceed (NTP).

Temporary electrical service shall be provided by the Tenant at the Tenant's expense. Tenant or Tenant's contractor must have DIA's and Xcel's prior approval to connect temporary lines to the power source for electrical service to the Tenant's Premises.

Tenant's contractor shall provide any required temporary heat for the Premises at its sole expense.

All tenant's gas lines shall be pressure tested to 100 psi.

401.14 TAXES

All tangible personal property used in the construction process or incorporated into the Work will be subject to all local government and State of Colorado sales and use taxes, except as provided

herein.

Construction and building materials sold to the Tenant or its contractor and subcontractors for use on the Project are subject to sales and use taxes imposed by the City and, if applicable, sales and use taxes imposed by other taxing authorities. Such sales and use taxes shall in no instance be part of any compromise or settlement of any claims on the Project or any lawsuit related to the Project without the prior written consent of the City's Manager of Revenue.

The purchase cost or value of construction tools or equipment used on the Work site is subject to sales and use tax.

401.15 HAZARDOUS AND EXPLOSIVE MATERIALS

The Tenant and its contractor shall exercise the utmost care and caution if the storage or use of hazardous materials or explosives are required for the performance of the Work. Activities related to the purchase, storage, use, removal, treatment, and disposal of such hazardous materials shall be supervised and carried out by personnel properly qualified to perform such activities. In no circumstances shall activities requiring the purchase, storage, use, removal, treatment or disposal of hazardous materials be started without first notifying the DIA Maintenance and Engineering Project Manager in writing of the proposed activity and receiving written approval of such action. The use and storage of explosives will not be allowed on site.

401.16 USE, POSSESSION, OR SALE OF ALCOHOL OR DRUGS

DIA is a safety sensitive construction area, and all employees must be screened/tested for illegal drugs and alcohol as a condition of access to the site, if a workplace accident occurs, or whenever a supervisor has a reasonable suspicion of drug or alcohol use on premises.

SECTION 402 - CONSTRUCTION PERSONNEL

402.1 TENANT CONTRACTOR'S SUPERINTENDENT

The Tenant's contractor shall employ a competent superintendent whose qualifications shall be acceptable to the DIA Maintenance and Engineering Project Manager. The superintendent shall serve on a full-time basis at the Work site and shall be authorized to act on behalf of Tenant's contractor in all field, financial, engineering and other matters related to the Work. Tenant contractor's superintendent shall have the power to immediately stop or modify the work program and shall attend job coordination meetings which shall occur weekly or more often and be chaired by a party designated by DIAL. Tenant's contractor agrees that the same person shall continue in the capacity of superintendent until the Work has been completed, unless the Tenant or DIA requests that a superintendent be replaced or the superintendent ceases to be employed by the Tenant's contractor or is sick or disabled. The superintendent or his/her designated representative must be on-site at all times when on-site Work is performed.

402.2 TAXES

Any employee working for the Tenant's contractor or one of its subcontractors who earns over five-hundred (500) dollars working in the City and County of Denver during a calendar month, is subject to the payment of the Employee Occupational Privilege Tax. The Tenant's contractor or any of its subcontractors who have any employee, working in the City and County of Denver, who earns the amount set forth above must withhold the aforesaid Employee Occupational Privilege Tax from the wages of each employee subject to it, remit it to the City, and, pay to the City the correlative Business Occupational Privilege Tax imposed on the employer for such employee.

402.3 COMPETENCE OF CONSTRUCTION PERSONNEL

Competent employees with experience and skills adequate for the assigned task are an absolute necessity to ensure job safety. It is expected that employees who are incompetent, refuse to comply with safety requirements or are otherwise unfit to perform the assigned task will be reassigned by the Tenant's contractor to tasks which such employees are capable of performing, and that any employee who refuses or repeatedly fails to comply with safety requirements will be removed from the work site.

The City Auditor's Office shall from time to time interview the Tenant contractor's or subcontractors' employees while they are working to assure that the proper wages are being paid.

Compliance with the above requirements shall be deemed a "Specification" of the Tenant's owner-contractor agreement as such word is used in Section 49-173, Revised Municipal Code of the City and County of Denver, and violation of the prevailing wage requirements and its documentation, hereinabove set forth, shall result in an order from the Manager of Aviation of the City and County of Denver for the Tenant Work to cease until there is satisfactory evidence that the violation has been remedied and will not reoccur. The issuance of such a "stop work order" shall not relieve the contractor's surety of any liability on the contractor's bond(s), but such a stop work order shall be deemed a default by the Tenant's contractor insofar as said surety's obligation is concerned.

402.4 PAYMENT OF PREVAILING WAGES

The contractor and all of its subcontractors must pay every worker, mechanic or other laborer employed by them in the performance of the work, prevailing wages, including fringe benefits or their cash equivalent, for the same class and kind of work in the City, as determined by the Career Service Board under the provisions of Section 20-76, in its entirety, of the Revised Municipal Code of the City and County of Denver.

The Tenant's contractor shall post in a prominent and easily accessible place at the Site of the Work the scale of wages to be paid by the contractor and all subcontractors at any tier working under the contractor.

The contractor shall furnish to the Mayor's Office of Contract Compliance and to the Auditor of said City, or his appointed representative, each week in which Work is in progress a true and correct copy of the payroll records of all workers, laborers and mechanics employed under said agreement, either by the Tenant's contractor or subcontractors at all tiers.

The payroll shall be submitted in such form as required by the City's Auditor's Office with all information listed on the form being provided by the Tenant's contractor and subcontractors of any tier. All payroll records shall include information showing the numbers worked by each worker, laborer or mechanic employed under the owner-contractor agreement, the hourly pay of such worker, laborer or mechanic, any deductions made from pay, and the net amount of pay received by each worker, laborer or mechanic for the period covered by the payroll, and the payroll record shall be accompanied by a sworn statement of the Tenant's contractor that the copy is a true and correct copy of the payroll records of all mechanics, laborers or other workers working under the owner-contractor agreement, either for the contractor or subcontractors, that payments were made to the workers, laborers and mechanics as set forth in the payroll records, that no deductions were made other than those set forth in such records, and that all workers, mechanics and other laborers employed on Work under the owner-contractor agreement, either by the contractor or any subcontractor, have been paid the prevailing wages as set forth in the construction contract specifications or special conditions.

SECTION 403 - INSPECTIONS

403.1 CONSTRUCTION INSPECTION BY DIA

Contractors must perform all inspections as required by their Federal, State, and/or local permits and rules and regulations. Additional inspections by Local and State regulatory agencies may also be conducted. Persons who are employees of DIA or under contract will be assigned to inspect and test the Work. These persons may perform any tests and observe the Tenant contractor's Work to determine whether or not designs, materials used, manufacturing and construction processes and methods applied, and equipment, furnishings, fixtures, systems and finishes installed satisfy the requirements of the "Approved" or "Approved as Noted" Construction Contract Documents, approved Shop Drawings, Product Data and Sample submittals, and the Tenant contractor's warranties. The Tenant's contractor shall permit these inspectors, Denver Fire Prevention Bureau inspectors, Denver Health & Hospitals sanitation inspectors, and BID inspectors unlimited access and provide the means of access to the Work as well as whatever access and means of access is needed to off-site facilities used to store or manufacture materials, furnishings, futures and equipment to be incorporated into the Work and shall respond to any other reasonable request to further the DIA inspectors' ability to observe or complete any tests. Such inspections shall not relieve the Tenant's contractor of any of its obligations under its owner-contractor agreement.

403.2 AUTHORITY OF DIA'S INSPECTORS

Inspectors assigned to the Work by DIA are authorized to reject any Work, any fixtures, systems, materials, equipment, furnishings or any component of the Work which is not as required or as specified in the Approved Construction Contract Documents. Any such rejection will be communicated by the DIA Maintenance and Engineering Project Manager in writing to the Tenant and the Tenant's contractor.

403.3 DEFECTS - UNCOVERING WORK

DIA may inspect all Tenant Work as the Work progresses. The purpose of this inspection activity is to attempt to determine on a periodic basis whether or not the Tenant contractor's Work is adequate to provide the product expressed in the design intent which DIA approved in the Tenant's final design submittal. Whether or not the Tenant Work is defective will be determined by comparing it to the Approved Construction Contract Documents and approved Shop Drawings and Samples and bringing it to the attention of the Tenant's Design Consultant for determination. Additionally, should the appearance and performance of any element of the Work fail to conform to the standards of the trade for such Work, that Work may be declared defective.

If defective Work is discovered during such inspections, the Tenant shall pay DIA its costs of re-inspecting the Work after such Work has been corrected. If any portion of the Work is covered and inaccessible for inspection contrary to the request of DIA or contrary to requirements specifically expressed in the Approved Construction Contract Documents, such covering or finishes must, if required in writing by the Tenant's Design Consultant and DIA, be uncovered for observation, and replaced, without charge to the DIA.

If any other portion of the Work has been covered which DIA has not specifically requested to observe prior to being covered, DIA may request to see the covered Work. If the covered work is found to be in accordance with the Approved Construction Contract Documents, the Tenant may submit a request to the DIA for credit for costs appropriately chargeable to DIA. If such covered Work is found to be at variance with the Approved Construction Contract Documents, DIA shall not be charged.

403.4 OBSERVABLE (PATENT) DEFECTS

Observable or patent defects are those which are discoverable by routine testing and inspection procedures or by implementing special tests as required or implied by the Tenant's Technical Specifications. Patent defects discovered by DIA inspection process shall be repaired, removed, or replaced at no cost to DIA, as these are identified. DIA will notify the Tenant of such defects through the DIA Maintenance and Engineering Project Manager.

403.5 LATENT DEFECTS

Materials, fixtures, furnishings and equipment incorporated into the Work may have, or as a result of the construction process may develop, hidden latent defects. Such defects shall be known as latent defects, and when discovered, will be remedied at no cost to DIA.

403.6 REMOVAL OF DEFECTIVE MATERIALS, SYSTEMS AND WORK

The Tenant shall ensure that its contractor remove from the Work and Work site all defective materials or rejected work. If the Tenant fails to have the material, system component, fixture or work removed and disposed of properly within ten (10) calendar days after receiving written notice from the City to do so, DIA may have such material, system component; fixture or work removed and charge the Tenant.

SECTION 404 - PROTECTION OF PROPERTY

404.1 PROTECTION OF PROPERTY AND WORK IN PROGRESS

The Tenant's contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:

All the Work and all materials, equipment, systems, fixtures and furnishings to be incorporated therein, whether in storage on or off the Work site, under the care, custody or control of the contractor, subcontractors, subordinate subcontractors of any tier, or suppliers; and

Other property at the Work site or adjacent thereto, including but without limitation, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

The Tenant's contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules, regulations, and, lawful orders of any public authority bearing on the safety of property or its protection from damage, injury, or loss and further, shall cooperate and keep the Tenant, MA and other contractors informed of all of the Tenant contractor's precautions for the protection of the work.

The Tenant's contractor shall be solely responsible for the design, installation and maintenance of all temporary structures such as, but without limitation, all necessary bracing, framing and structures or structural elements to prevent the failure of materials or temporary facilities required in the execution of the Work which could result in damage to property or the injury or death of persons. The Tenant's contractor shall take all reasonable precautions to ensure that no part of any structure of any description is loaded beyond its bearing capacity. The Tenant's contractor shall not permit open fires within any building enclosure.

If any of the Tenant contractor's operations destroy or damage any real or personal property, public or private, the Tenant's contractor shall promptly repair or replace such property before DIA will issue a letter of occupancy to the Tenant.

404.2 PROTECTION OF MUNICIPAL AND PUBLIC SERVICE SYSTEMS

Before any Tenant Work is started, the Tenant's contractor shall communicate with all governmental agencies and private entities which have jurisdiction over municipal or other public service systems which might be affected by the Work. After the Work is begun, the Tenant's contractor shall perform in a manner designed to reduce to a minimum the potential for disrupting the operations of municipal and other service systems. In particular, when a municipal or other public service system can be affected by Improvement Work or utilities service extensions executed by the Tenant's contractor, the Tenant's contractor is required to contact the agency responsible for the operation of that affected system for instructions on how best to proceed.

404.3 PROTECTION OF THE STREETS AND ROADS

Traffic control systems such as street signs, traffic signals, traffic lane markings and any other equipment or facilities which aid in the control of traffic are important elements of the street and road system. These elements must be protected and the Tenant shall be liable for any damages to the system or any damages to persons and property which might result from failures in the traffic control system which were caused by the Tenant's or its contractor's operations.

404.4 PROTECTION OF DRAINAGE WAYS

The Tenant and its contractor shall not bypass untreated or partially treated waste waters or waste materials to storm sewers or other drainage courses. All bypassing or pumping of sanitary sewerage required during construction shall be to other sanitary sewer facilities approved by DIA. All existing sewer facilities shall remain in continuous and full operation during construction.

404.5 PROTECTION OF THE ENVIRONMENT

The Tenant and its contractor shall comply with all applicable federal, state, and local environmental protection rules, laws, ordinances, and regulations and accept responsibility for compliance with all environmental quality standards, limitations and permit requirements promulgated thereunder, including but without limitation, DIA's Rules and Regulations, City and Country of Denver ordinances and Executive Orders, applicable DIA and Tenant permits, and all federal, state, and local laws and regulations.

If DIA is determined by any federal, state or local government agency, department, board or commission, or in any judicial proceeding or administrative hearing to have violated any such environmental protection rules, laws or regulations as a result of the Tenant's or Tenant contractor's acts or omissions, the Tenant agrees to indemnify DIA in accordance with the provisions of the Tenant's Agreement.

SECTION 405 - QUALITY CONTROL

The Tenant's contractor shall provide a quality construction product. To establish the level of quality, the Tenant as a minimum shall require its contractor to use the quality standards as apparent in the existing base building. This level of quality shall include without limitation the grades of material, thicknesses, strengths, any national standards that must be met, any samples that must be submitted, any testing required to assure quality, any experience required of installers, all fabrication and installation tolerances and other related quality items.

DIA shall have the right to inspect all Work, at any time and assure itself that the minimum quality level required is being provided.

The Tenant or its contractor shall notify the DIA Maintenance and Engineering Project Manager twenty-four (24) hours prior to covering up work so that it may be reviewed. Any work covered up

without first providing such twenty-four (24) hour advance notice may be required to be removed under the provisions of Section 4.3 above.

The Tenant's contractor shall provide for DIA and any party designated by DIA all access including, but without limitation, ladders, access doors, lifts, and ventilation needed to review the quality of the Work.

Quality control shall also include the manufacturing and fabrication processes and the establishment of the minimum quality performance levels and tolerances during manufacturing and fabrication.

405.1 DOCUMENTS AND SAMPLES AT THE WORK SITE

The Tenant shall maintain at the Work site on a current basis, one (1) record copy of all approved drawings, specifications, addenda, change orders and change directives in good order and marked currently to record all changes made during construction, and copies of all approved Shop Drawings, Working Drawings, Product Data, and Samples.

405.2 SHOP DRAWINGS, WORKING DRAWINGS, PRODUCT DATA AND SAMPLES

The Tenant shall ensure that its contractor prepare, review, certify, and submit to the DIA Maintenance and Engineering Project Manager, with reasonable promptness and in such sequence so as to cause no delay in the Work, any requested Shop Drawings, Working Drawings, Product Data and Samples. All drawings shall contain identifying nomenclature and the applicable specification section number to which the work applies. Each submittal shall be accompanied by a transmittal identifying in detail all enclosures.

The Tenant's contractor shall not be relieved of responsibility for any material deviation from the requirements of the Approved Construction Contract Documents by DIA's or Tenant's acceptance of Shop Drawings, Working Drawings, Product Data or Samples unless the Tenant's contractor has specifically informed the DIA Maintenance and Engineering Project Manager in writing of such deviation at the time of submission and the Tenant and the DIA Maintenance and Engineering Project Manager have both given written acceptance to the specific deviation.

No portion of the Work for which DIA requests submission of Shop Drawings, Working Drawings, Product Data, or Samples shall be commenced until the requested submittal has been reviewed by the DIA Maintenance and Engineering Project Manager and accepted by the Tenant's Design Consultant. Acceptance by the DIA Maintenance and Engineering Project Manager or the Tenant's Design Consultant shall not relieve the Tenant's contractor of its responsibilities under the Approved Construction Contract Documents.

405.3 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

The Tenant may ask for substitution of specified material, equipment or furnishings with equal or equivalent items only under the following circumstances:

- A. The Tenant's contractor provides evidence to the DIA Maintenance and Engineering Project Manager and the Tenant's Design Consultant which in the Tenant Design Consultant's opinion, establishes that an item of specified material is not available; or,
- B. The Tenant's contractor provides evidence which, in the Tenant Design Consultant's opinion, establishes that the specified item will have an unreasonable

- delivery time due to no fault of the Tenant's contractor; or,
- C. If the Special Conditions of the Approved Contract Documents allow the use of equal or equivalent.

All requests shall be in writing as part of a submittal. The requests shall describe all features of the requested substitution including any tie-in with other elements of the construction including utilities, wiring and controls along with the substitute materials or equipment's size and capacity. The request shall list all differences from the product described in the Approved Technical Specifications, include the price of the specified item and the requested substitution, and describe any advantages or disadvantages of the proposed substitution.

405.4 CHANGES IN THE WORK

All proposed modifications to the approved documents for the Work (contract documents, safety plans, stormwater management plans, etc.) must be submitted to DIA for review. No change order or other contract modification which materially changes the scope of the Improvements shall be executed without prior approval of the DIA Director of Aviation. The Building Inspection Division of the City and County of Denver shall also receive copies of all change orders. Any conditional approval or disapproval shall be accompanied by an explanation of the reasons.

405.5 CUTTING AND PATCHING OF THE WORK

Modification to a building structural system requires review by the Structural Engineer of record for the building. If cutting and patching is proposed then DIA needs to see the Structural Engineer's design and review of the changes. Also with regard to X-ray for penetrations, Contract should adhere to the DIA standard procedures including safety.

The Tenant's contractor shall be responsible for all cutting, fitting, or patching that may be required to complete the Work or make its several parts fit together properly or tie the Work into other work that is shown on the Approved Construction Contract Drawings.

Cutting or patching may be necessary to: make parts fit together properly, remove and replace defective work, remove and replace work not in conformance with requirements, remove samples of installed work as required for testing, provide for penetration of non-structural surfaces for installation of piping, ducts and electrical testing, provide for previously approved penetration of structural surface for installation of piping, ducts and electrical conduit and to tie items together. All patching material shall be of the type specified for the material being patched. If none is specified the patching material shall provide no less strength or weather resistance than the material removed or the surrounding material. The color and texture of the patching material shall match adjoining areas such that the patch area is not identifiable.

The cutting and patching process shall consist of: inspecting the existing conditions of the work, including elements subject to damage or to movement during cutting and patching; providing adequate temporary support as necessary to assure structural value or integrity of the affected portion of the work; providing devices and methods to protect property from damage; provide protection from the elements for work which may be exposed by cutting and patching work, cutting and demolishing by methods which prevent damage to other work, and will provide proper surface to receive installation of repairs; fitting up and adjusting of products to provide a finished installation to comply with specified products, functions, tolerances and finishes; restoring work which has been cut or removed; installing new products to provide complete work, fitting up work airtight and fire safe to pipes, sleeves, ducts, conduits and other penetrations through surfaces, as needed to maintain rating and integrity; refinishing entire surfaces as necessary to provide an even finish to

match adjacent finishes; and refinishing continuous surfaces of the entire unit to the nearest natural break line.

Tenant's contractor shall organize and plan the Work to reduce to a minimum the need for cutting or otherwise removing load bearing structural elements to accommodate the installation of piping, ductwork, conduit or equipment. If two (2) or more contractors are doing work in the same location, the Tenant's contractor shall be responsible for the coordination effort needed to make unnecessary or to reduce the amount of cutting or removing of structural elements to accomplish such work. DIA's contractor work shall take priority over Tenant's contractor work should a conflict arise. However, if cutting of structural elements is required, the Tenant's contractor shall inform the DIA Maintenance and Engineering Project Manager of the need so that the consequences of such cutting or removal of structural elements can be assessed by DIA. No structural element (including floor slabs) can be cut, drilled, cored, bored or otherwise modified unless cutting, drilling, coring, boring or other modification is indicated on the Approved Construction Contract Drawings. If the Tenant's contractor needs to remove, cut, drill, core, bore or otherwise modify a structural element from the original design, the Tenant's contractor must submit to the DIA Maintenance and Engineering Project Manager a written request to make such modification. The request must provide complete details including all necessary calculations to show that the structural elements can still function as originally designed. The request must be accepted by the DIA Maintenance and Engineering Project Manager before any modification is made.

Prior to performing any cutting, fitting, coring, boring or patching needed to DIA property or the property of others the Tenant shall submit a written request to the DIA Maintenance and Engineering Project Manager at least fifteen (15) calendar days prior to performing such cutting, fitting, coring or alteration. Such request shall: (i) identify the Tenant; (ii) note the lease area; (iii) name the Tenant's contractor; (iv) provide the exact location of the requested cutting, coring or alteration; (v) contain a narrative description of the affected work; (vi) state the necessity for such cutting, coring or alteration; (vii) describe the effect on the work and other surrounding work or on structural or weather-proof integrity of DIA and other property; (viii) describe the scope of cutting, patching, coring, boring, alteration, demolition, or excavation; (ix) list which trades will execute the work; (x) define the products proposed to be used; (xi) describe the extent of refinishing to be done; (xii) list any proposed alternatives to cutting, patching, coring and boring; and (xiii) include the written concurrence of any separate party whose work will be affected by the proposal.

SECTION 406 - SAFETY

406.1 SAFETY OF PERSONS

The Tenant's contractor is responsible for the health and safety of its employees, agents, subcontractors, subordinate contractors, suppliers, materialmen, and other persons on the Work site. The Tenant's contractor shall take all necessary and reasonable precautions and actions to protect all such persons from injury, damage or loss. Such actions shall include, but without limitation:

- A. Compliance with all the applicable City, State or Federal occupational health and safety laws, regulations, ordinances, rules or orders. DIA shall have the right at any time to conduct an in-depth safety compliance review of the Tenant contractor's and its subcontractors safety policies, practices and procedures.
- B. Preparation and implementation of a Tenant contractor's safety program.

The Tenant's contractor shall assure the highest standard of safety during construction.

The Tenant's contractor shall employ at the Work site a responsible qualified person whose duties shall include the protection of persons and property and the administration of the Tenant contractor's safety program. This person shall be on the Work site at all times when construction is being performed and such person shall have power to stop the work if the minimum requirements of all federal, state, local rules regulation, ordinances are not followed. This person must have safety training, a working knowledge of state and federal health and safety laws and experience administering safety programs. The Tenant's contractor shall provide the DIA Maintenance and Engineering Project Manager with this person's name prior to the start of construction.

This Section shall be interpreted in its broadest sense for the protection of persons and property by the Tenant's contractor and no act or omission to act by DIA, its employees or agents, by the Tenant, or by the Tenant's Design Consultant shall relieve the Tenant's contractor of any of its obligations or duties under law.

The Tenant's contractor shall provide six (6) copies of its safety program to the DIA Maintenance and Engineering Project Manager at least ten (10) days before on-site construction begins for review and approval by the DIA Department of Aviation.

The Tenant's contractor shall provide to the DIA Maintenance and Engineering Project Manager a complete copy of any OSHA correspondence reports, warnings, citations, directives or notices within twenty-four (24) hours after said items have been received by the Tenant's contractor. The Tenant's contractor shall also provide the DIA Maintenance and Engineering Project Manager with a copy of any Tenant contractor's reply to any OSHA correspondence, report, warning, citation, directive or notice or any communication with OSHA concerning work at the DIA site.

The Tenant's contractor shall provide a copy of the Employer's First Report of Injury for any lost time accident and an accident report describing all witness to the events that happened, the location of the incident, type of injury and such other information required by DR. The Tenant's contractor shall also provide to DIA reports of property damaging incidents or any injury that requires off-site medical treatment to the DIA Maintenance and Engineering Project Manager within twenty-four (24) hours after the Tenant's contractor becomes aware of such accident or injury.

406.2 PROTECTIVE DEVICES AND SAFETY PRECAUTIONS

The Tenant's contractor shall provide all necessary protective devices and safety precautions which may include but without limitation posting of danger signs warning against hazards such as but without limitation hoists, slab openings, elevator hoistways, scaffolding, stairways and falling materials; equipment back-up alarms; installation of construction barricades; promulgation and application of safety regulations and employment of safety personnel and guards. Signs will not be considered as an adequate substitute for physical protective barriers. The costs of all protective devices and the planning and implementing of safety precautions shall be included in the Tenant contractor's contract amount.

SECTION 407 - SECURITY

Security will be required and must be as required in the DIA Rules and Regulations. Generally, the Tenant is responsible for security of Tenant's area and will be required to provide a security system for its agents, contractors, and employees within the construction area.

Tenant's contractor shall contain its storage and laydown of materials, equipment and tools and its operations within the Tenant's Premises and such other area as may be assigned by DIA. Should Tenant's contractor be assigned storage/laydown space outside of the Tenant's Premises, it shall

move out of the former storage/laydown space as DIA shall direct to avoid interference or delays with other DIA or tenant improvement work.

All Tenant Work required to be performed off Tenant's Premises in public or common areas (i.e. plumbing lines, electrical cables, HVAC ductwork, telecommunications wiring, etc.) shall be performed between the hours of 11:00 pm and 6:00 am unless otherwise agreed to in writing by the DIA Department of Aviation. Tenant's contractor shall inform the DIA Maintenance and Engineering Project Manager of the need for such after hours Work in writing a minimum of seven (7) days advance notice.

All proposed Work shall be performed in such a manner so as to avoid any labor dispute which may result in a stoppage or impairment of work or delivery services or any other services in the Landside Terminal Complex or Airside Concourses, and in the event there shall be any such work stoppage or impairment or delay as the result of any such labor dispute, Tenant and Tenant's contractor shall immediately undertake such actions as may be necessary to eliminate said dispute or potential dispute.

Tenant and its contractor shall use only such entrances, routes, roads, and access ways as shall be directed by DIA.

All demolition work shall be performed after 11:00 pm and before 6:00 am unless otherwise agreed to in writing by the DIA Department of Aviation. Cleaning and dust control measures must be taken to prevent dirt and dust from infiltrating into the adjacent tenant, mechanical system or base building areas.

All base building return air ducts and diffusers and all base building provided VAV terminal air units shall be protected with suitable filter media furnished and installed by the Tenant contractor at the Tenant's expense.

407.1 PERSONNEL BADGES

Persons regularly entering the construction site must obtain a personnel identification badge from the DIA Operations Division office and must display said badge upon entering and at all times while they remain on-site. Operators and occupants of vehicles must be similarly authorized (badged) to enter the site. Vehicle permits are required for all vehicles.

UNDER NO CIRCUMSTANCES will vehicles be allowed to enter or remain on-site without a valid vehicle permit.

SECTION 408 - SCHEDULES

The Tenant's contractor shall schedule and coordinate the work of all its subcontractors and suppliers including their procurement activities and their use of the Work site. The Tenant's contractor shall keep the subcontractors and suppliers informed of the project construction schedule to enable the subcontractors and suppliers to plan and perform their work properly.

The Tenant's contractor shall submit a construction schedule to the Planning and Engineering Project Manager in logical, easy to read format which shall provide for the expeditious and practicable execution of the Work.

The construction schedule for the performance of Tenant Work shall indicate reasonable detail and critical milestones. All long lead procurement and fabrication items shall be indicated as a separate

activity. Tenant's contractor shall submit purchase order evidence to DIA for all long lead items including purchase order numbers and dates originally purchased.

The Tenant shall submit a weekly progress report and weekly schedule update to the DIA Maintenance and Engineering Project Manager.

SECTION 409 - SITE MOBILIZATION

409.1 CONSTRUCTION ACCESS

Access to the DIA work site for construction is limited and will be determined and coordinated with the DIA Maintenance and Engineering Project Manager.

All persons and vehicles entering the construction site MUST be properly authorized to do so and MUST enter at the designated site entrance gate locations. The Tenant and Tenant's contractor shall be responsible for assuring DIA that all persons and vehicles required are in possession of valid access authorizations and for returning same to DIA upon final completion or termination.

409.2 TENANT AND CONTRACTOR PARKING

Parking for construction vehicles, both tenant and contractors, will be assigned by DIA. Parking will not necessarily be in the immediate proximity of the Tenant's Premises.

409.3 STORAGE OF MATERIALS

Storage of construction materials, furnishings and equipment shall be as approved by DIA. Generally, construction materials will not be stored within the Airside Concourse or Landside Terminal Complex public areas other than the Tenant's Premises.

The storage of highly combustible materials shall be severely limited and subject to the City and County of Denver Fire Department regulation. All stored items shall be stored in such a manner such that they can be easily walked around and through and moved by pallet trucks or equivalent devices.

END OF CHAPTER 4

CHAPTER 5 MOVING IN

SECTION 501 - NOTICE OF SUBSTANTIAL COMPLETION

When the Tenant's contractor considers that the Work is substantially complete as defined in the Glossary herein, the Tenant's contractor shall notify the Tenant and the DIA Maintenance and Engineering Project Manager that the Work is ready for inspection and shall include with its notice of substantial completion of the Work a list of minor items to be completed or corrected that would not affect the Tenant's beneficial occupancy.

SECTION 502 - CLEAN-UP UPON COMPLETION

Upon Notice of Substantial Completion of the Work, the Tenant's contractor shall, as soon as practicable, remove all waste materials, excess materials, tools, and equipment such as scaffolding, temporary structures, and facilities such as sanitary facilities.

The Tenant's contractor shall clean and replace broken or scratched windows, clean and repair all surfaces, and clean and adjust all units of equipment which are part of the various Tenant improvement systems.

Any Tenant improvement project constructed must be clean and ready for full use before it is given a final inspection. The Tenant shall ensure that all clean-up is done to the satisfaction of the DIA Maintenance and Engineering Project Manager.

SECTION 503 - INSPECTION/PUNCH LIST

503.1 INSPECTION AND PUNCH LIST

Within ten (10) calendar days after receipt of the Tenant contractor's notice of Substantial Completion of the Work, the Tenant's Design Consultant, the Tenant, representatives of any affected City agencies, the DIA Maintenance and Engineering Project Manager, DIA Environmental Services and the Tenant's contractor shall make an inspection of the Work to determine whether the Work has been completed in accordance with the Approved Construction Contract Documents and to review the Tenant contractor's punch list. If in the opinion of the Tenant's Design Consultant and the DIA Maintenance and Engineering Project Manager the Work has not been completed to the required stage, the parties shall cease the inspection and an appropriate charge may be issued for all costs associated with such premature inspection, including City's additional costs made necessary thereby. If, however, the Work has been completed to the required stage, a punch list shall be prepared by the Tenant's contractor and consist of those items listed by the Tenant's contractor to be completed or corrected as supplemented by those items of work observed and noted by others during such inspection. The required number of copies of the punch list will be countersigned by the DIA Maintenance and Engineering Project Manager, Tenant Coordinator,

Tenant and Tenant's Design Consultant and will then be transmitted by the Tenant's contractor to the City's Tenant Coordinator and the Tenant. Failure to include any items on the punch list shall not alter the responsibility of the Tenant's contractor to complete all Work in accordance with the Approved Construction Contract Documents.

503.2 FINAL COMPLETION & ACCEPTANCE OF THE WORK

Final Inspection: The Tenant's contractor shall notify the Tenant's Design Consultant and the DIA Maintenance and Engineering Project Manager in writing when all the punch list items have been completed and clean-up has been done. The Tenant, the Tenant's Design Consultant and the DIA

Maintenance and Engineering Project Manager shall then make the final inspection for the purpose of ascertaining that the Work has been fully completed in accordance with the requirements of the Approved Construction Contract Documents.

Final Completion: After the parties above have made the final inspection and satisfied themselves that the Work has been completed in accordance with the Approved Construction Contract Documents, the Tenant will establish the date of final completion by signing off to that effect on the punch list and the Certificate of Substantial Completion. (See Section 504 below.) The DIA Maintenance and Engineering Project Manager will countersign the Certificate.

Final completion shall start the period of warranty unless stated otherwise in the Tenant's contract documents.

Final Acceptance: After final completion has occurred and the Tenant and DIA Department of Aviation are satisfied that all submittals have been made and accepted, all project field record drawings ("as-builts") have been completed and accepted, all change orders and change directives executed, all final quantities agreed to, and all other contract requirements met except for warranty and training, the Tenant shall issue a Certificate of Final Acceptance. Final payment may then be processed by the Tenant.

SECTION 504 - CERTIFICATE OF SUBSTANTIAL COMPLETION

When the Tenant, on the basis of the inspection and with the Tenant Design Consultant's recommendation and DIA Maintenance and Engineering Project Manager's recommendation, determines that the Work or designated portion thereof is complete, the Tenant will prepare a Certificate of Substantial Completion of the Work which shall establish the Date of Substantial Completion of the Work and initiate the Warranty Period. The certificate shall state the responsibilities of the Tenant, DIA and the Tenant's contractor for security, maintenance, property insurance premiums, and damage to the Work, state items still to be completed by the Tenant's contractor and fix the time within which the Tenant's contractor shall complete the items listed therein. DIA shall be responsible for normal water, heat, and utilities unless otherwise agreed and stated on the certificate. The Certificate of Substantial Completion of the Work shall be submitted to the DIA Maintenance and Engineering Project Manager and the Tenant's contractor for their written acceptance of the responsibilities assigned to them in such Certificate. The date of Substantial Completion of the Work shall establish the date of completion for determining any liquidated damages or bonuses, but shall not otherwise alter the responsibility of the Tenant's contractor to complete all Work in accordance with the Approved Construction Contract Documents.

SECTION 505 - CERTIFICATE OF OCCUPANCY

The Tenant shall be responsible for obtaining any and all temporary and permanent certificates of occupancy and inspections required therefore.

SECTION 506 - EARLY OCCUPANCY

The Tenant shall have the right to take beneficial possession of and to use any completed or partially completed portions of the Premises, even if Substantial Completion of the Work has not occurred and even if the Work has not been finally accepted. Such beneficial possession and use may only apply after the Tenant has applied for and received a Temporary Certificate of Occupancy from the City's Building Inspection Division. Such possession and use of the Premises shall not constitute an acceptance of such portions of the Work.

If the Tenant elects to take possession of and to use completed or partially completed portions of the Work prior to Substantial Completion of the Work an inspection shall be made by the Tenant's Design Consultant and the DIA Maintenance and Engineering Project Manager. After such inspection, they shall attempt to list all incomplete contract work items observed. The absence of an item from the list shall not release the Tenant's contractor from responsibility to perform the Work. Any and all areas so occupied by the Tenant will be subject to a final inspection when the Tenant's Contractor complies with the requirements outlined under Part 5, "Certificate of Substantial Completion."

At the time of the inspection made pursuant to obtaining a Certificate of Substantial Completion, the Tenant and its contractor shall also agree upon the responsibilities of the Tenant and the Tenant's contractor for security, maintenance, heat, utilities, and damage to the Work.

All life Safety Systems and Security systems shall have been tested and accepted prior to request for early occupancy.

SECTION 507 - WARRANTIES

507.1 WARRANTIES AND CORRECTION OF WORK

The Tenant shall ensure that all parts, materials, components, fixtures, furnishings, equipment, finishes and other items used to perform the Work shall be new (unless otherwise specified in the Tenant's approved Specifications) and suitable for the purpose used and will be of good quality, free from faults and defects and in conformance with the Approved Construction Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Tenant's contractor shall, when requested by DIA through the Tenant, furnish DIA with satisfactory evidence as to the kind and quality of materials, fixtures, furnishings and equipment. The Tenant shall ensure that the construction processes and methods employed by its contractor to perform the Work shall have in the past proven to be suitable for the results expected. If the Tenant's contractor proposes to use an unproven and untried method, process or product, the DIA Maintenance and Engineering Project Manager must be advised of that proposal, in writing. DIA may permit experimentation, and it may require special guarantees to cover the work produced by such new and untried process, method or product.

The Tenant shall ensure that full title to all fixed equipment, components and other fixed items is conveyed to DIA under the terms of the Concession Lease and Agreement, that transfer of such title to DIA is rightful and that all such fixed equipment, components, systems, exhaust hoods and other fixed items shall be transferred to DIA free and clear from all security interests, liens, or encumbrances whatsoever. Tenant's warranty for such items shall pass to DIA at the date of Substantial Completion.

The Tenant shall ensure that its contractor promptly repair, replace or otherwise correct any of its workmanship and any parts, materials, furnishings, fixtures, finishes, components, equipment or other items in the Work which contain faults or defects whether such failures are observed by DIA, Tenant or Tenant's contractor before or after Substantial Completion.

The Tenant shall ensure that warranties shall continue for a period of at least one (1) year after the date of Substantial Completion in accordance with the specifications herein, or such longer period of time as may be prescribed by the terms of any special warranties required by the Approved Construction Contract Documents. If repair or replacement of faulty items of the Work is necessary, proper equivalent temporary substitutes shall be provided by the Tenant's contractor in order to

maintain the progress of the work and/or keep systems operating without any additional costs to the Tenant or DIA.

Nothing contained in this Section shall be construed to establish a period of limitation with respect to any other obligation which the Tenant's contractor might have under the Approved Construction Contract Documents. The establishment of the warranty periods set forth above relates only to the specific obligation of the Tenant's contractor to correct the work, and has no relationship to the time within which its obligation to comply with the Approved Construction Contract Documents may be sought to be enforced by the Tenant, nor to the time within which proceedings may be commenced to establish the Tenant contractor's liability with respect to its obligations and resulting damages other than specifically to correct the Work.

The Tenant shall ensure repair or replacement of any damages to equipment, facilities, furnishings, systems, components, finishes or other personal or real property owned or leased by DIA as part of the System, which is damaged as a result of any such fault or defect or its repair, at no cost to DIA.

All subcontractors', manufacturers', and suppliers' warranties and guarantees, express or implied, for any part of the work and any materials, equipment and components used therein shall be obtained and enforced by the Tenant's contractor for the benefit of the Tenant whether or not these warranties have been assigned or otherwise transferred to DIA or Tenant. The Tenant's contractor shall assign or transfer such warranties and guarantees to DIA if DIA requests to the Tenant to do so, but such transfer shall not affect the Tenant contractor's obligation to enforce such warranties and guarantees.

507.2 PERFORMANCE DURING WARRANTY PERIOD

The DIA Maintenance and Engineering Project Manager will notify the Tenant of work which it finds does not satisfy the warranties described above, and the Tenant's contractor shall, within the time set forth in such notice, begin to repair, replace or otherwise correct the Defective Work. Should the Tenant's contractor fail to begin such work within such time period, DIA may make the repairs or replacements at the expense of the Tenant. If DIA determines that immediate action to make repairs, replacements or other corrections is necessary because of emergency conditions or to prevent further loss or damage, DIA may proceed without notice to the Tenant's contractor but at the expense of the Tenant.

If the Tenant's contractor does not proceed with the correction of such Defective Work within the time fixed by written notice from the DIA Maintenance and Engineering Project Manager, DIA may remove it and may store the materials, components, fixtures or equipment at the expense of the Tenant. If the Tenant does not pay the cost of the removal and storage within ten (10) calendar days thereafter, the Department of Aviation may upon ten (10) additional days written notice sell the stored work at auction or at private sale and shall account for the net proceeds thereof, after deducting all costs that should have been borne by the Tenant's contractor.

If the proceeds of sale do not cover all costs DIA incurred and which the Tenant's contractor should have borne, the difference shall be charged to the Tenant.

If the Tenant's contractor does not agree that the work is defective or the Defective Work is its responsibility and if there is no emergency, the Tenant's contractor or Tenant may protest DIA Maintenance and Engineering Project Manager's decision by appropriate written communication to the Manager of Aviation. If such protest is not made within ten (10) calendar days of DIA's Notice of Defects, the Tenant's contractor shall have waived the right to contest its responsibility for the correction of such Defective Work. Under emergency conditions, the Tenant's contractor shall

immediately correct the Defective Work, and the question of responsibility for the expense shall be determined by DIA, subject to the right of the Tenant's contractor or Tenant to protest, as provided above, within ten (10) calendar days of DIA's notice allocating responsibility for the expense.

If the Tenant's contractor or Tenant does not agree with a determination of the MA Manager of Aviation concerning Defective Work, the Tenant's contractor or Tenant may request a hearing, except that, if the Tenant's contractor or Tenant has not provided notice to the Manager of Aviation within the time provided above, they shall have no right of appeal.

Should DIA claim by written communication before the warranty periods expire that certain Defective Work exists and that it requires repair or replacement, the warranty period shall be automatically extended for as long as the Defective Work exists.

SECTION 508 - FINAL SETTLEMENT

Before the Tenant authorizes final payment, the Tenant shall ensure that it's contractor has delivered to the DIA Maintenance and Engineering Project Manager for review:

- A. All statements to support local sales tax refunds;
- B. One (1) set of project record (as-built) drawings in AutoCAD release 2000 or newer .dwg format and one (1) set of full size set of reproducible prints. One (1) set of project record (as-built) specifications in MS Word format and one (1) hard copy. One (1) electronic PDF file of full size plans and specifications. All electronic files shall be submitted on a single CD-ROM and be labeled in accordance with the DIA Design Standards Manual 1.
- C. Satisfactory evidence that all payroll, material bills, and other indebtedness connected with the Work have been paid or otherwise satisfied;
- D. A complete and final waiver and/or release of any and all lien rights and liens from each subcontractor of all tiers, materialman, supplier, manufacturer and dealer for all labor, equipment, furnishing and material used or furnished by each on the Work;
- E. An Affidavit stating that all claims, liens, or other obligations incurred by the Tenant, the Tenant's contractor, and all its subcontractors of all tiers in connection with the performance of the Work have been paid and settled, and that there are no outstanding prevailing wage claims or disputes at either the City Auditor's Office or the U.S. Dept. of Labor;
- F. Consent of the surety to final payment;
- G. Certificate of occupancy as issued by Building Inspection;
- H. All contract required submittals have been made and accepted/approved.
- I. Required submittals to Denver Water Department (DPD) and Metro Denver Waste Water have been accepted. Submittal requirements for new development are in the Environmental Guidelines for design. EGs provide guidance for tenants for operating their new facilities and design. This must comply with lease terms and all local, state, and federal regulations for operations.
- J. Any other documents required to be furnished to the City by the Concession Agreement or the Approved Contract Documents;

In the event that there are at the time set for final payment outstanding claims against the Tenant or the Tenant's contractor or its subcontractors or for any other reason the Tenant and the Tenant's contractor are not able to give a proper affidavit that liens or other obligations have been properly paid and settled, the Manager of Aviation may, at his sole discretion, waive the requirement of said affidavit provided the surety on the Performance and Payment Bonds and Tenant Payment Bond will agree to the Tenant making final payment without in any way lessening or modifying the surety's liability under such Performance Bond, Payment Bond and Tenant Payment Bond.

END OF CHAPTER 5

**CHAPTER 6
DIRECTORY**

CITY AGENCIES

AUDITOR'S OFFICE

Denver International Airport
8500 Pena Blvd.
Denver, CO 80249
(303) 342-2700
(303) 342-2702 (Telefax)

BUILDING INSPECTION DIVISION – DPW

201 W. Colfax
Dept. 205
Denver, CO 80202
(720) 570-1501
(720) 865-2675 (Telefax)

CITY ATTORNEY'S OFFICE

Denver International Airport
8500 Pena Blvd.
Room 9810
Denver, CO 80249
(303) 342-2540
(303) 342-2552 (Telefax)

DENVER FIRE PREVENTION BUREAU

745 West Colfax Avenue
Denver, CO 80204
(720) 913-3474
(720) 913-3596 (Telefax)

DENVER WATER DEPARTMENT

1600 West 12th Avenue
Denver, CO 80204
(303) 628-6000
(303) 628-6199 (Telefax)

DEVELOPMENT ENGINEERING SERVICES (DES)

2000 W. 3rd Avenue, 3rd Floor
Denver, CO 80223-1027
(303) 446-3469

EXCISE AND LICENSE

201 West Colfax Avenue
Dept. 206
Denver, CO 80202
(720) 865-2740
(720) 865-2882 (Telefax)

**DIVISION OF SMALL
BUSINESS OPPORTUNITY**

201 W. Colfax
Dept. 208
Denver, CO 80202
(720) 913-1714
(720) 913- 1714 (Telefax)

WASTEWATER MANAGEMENT

2000 West 3rd Avenue
Denver, CO 80223
(303) 446-3400
(303) 446-3755 (Telefax)

ZONING ADMINISTRATION

201 West Colfax Avenue
Dept. 205
Denver, Colorado 80202
(720) 865-3000
(720) 865-3057 (Telefax)

RISK MANAGEMENT

201 West Colfax Avenue
Dept. 1105
Denver, CO 80204
(720) 913-3330
(720) 913-3184 (Telefax)

TREASURY DIVISION - TAX COMPLIANCE

144 West Colfax Avenue
Denver, CO 80202
(720) 865-7212

AIRPORT AGENCIES / DEPARTMENTS

PLANNING/ENGINEERING

Denver International Airport
Airport Office Building, 7th Floor
8500 Pena Blvd.
Denver, CO 80249
(303) 342-2200
(303) 342-2617

AIRPORT PROPERTY OFFICE

Denver International Airport
8500 Pena Blvd.
Denver, CO 80249
(303) 342-2200
(303) 342-2525 (Telefax)

GROUND TRANSPORTATION

Denver International Airport
Airport Office Building, Room 6860
8500 Pena Blvd.
Denver, CO 80249
(303) 342-2200
(303) 342-4089 (Telefax)

ENVIRONMENTAL SERVICES

Denver International Airport
Elrey B. Jeppesen Terminal Building
Level 6, Module 1 East Interior
Room 6619-20
8500 Peña Boulevard
Denver, CO 80249-6340
303 342-4432
303 342-2677 (Telefax)

SMALL BUSINESS OPPORTUNITY DIVISION

Denver International Airport
Airport Office Building, Room 7810
8500 Pena Blvd.
Denver, CO 80249
(303) 342-2200
(303) 342-2190 (Telefax)

SPECIALITIES

**XCEL ENERGY
OF COLORADO, DENVER METRO REGION**

1099 18th St.
Denver, CO 80202
(303) 308-6360

QWEST COMMUNICATIONS

Communications Consulting Center
1005 17th Street, Suite 890
Denver, CO 80202
(303) 965-0987 (Telefax)

**DENVER DEPARTMENT
ENVIRONMENTAL HEALTH**

201 W Colfax Ave, Dept 1009
Denver, CO 80204
(720) 865-5400

**DENVER PUBLIC HEALTH
DEPARTMENT**

605 Bannock Street
Denver, CO 80204
Phone: (303) 436-7183
Fax: (303) 436-7211

CHAPTER 7 GLOSSARY

Contractor Payment Bond	Contractor Payment Bond is required by the Tenant with the City and County of Denver being named as dual obligee. The Payment Bond shall be in the amount equal to 100% of the construction contract price. The Contractor Payment Bond shall guarantee prompt and faithful payment by the Tenant's Contractors to all persons supplying labor, materials, equipment, supplies and any other items required under the specifications of the contract. Risk Management is the regulatory City agency requiring Contractor Payment Bonds.
Contractor Performance Bond	Contractor Performance Bond is required by the Tenant with the City and County of Denver being named as dual obligee. The Contractor Performance Bond shall be in the amount equal to 100% of the construction contract price. The Contractor Performance Bond shall guarantee full and faithful performance of all the terms and provisions of the contract between the Tenant and the Contractor. Risk Management is the regulatory City agency requiring Contractor Performance Bonds. (See Contractor Payment Bond).
Date of Beneficial Occupancy	The date the owner/tenant may begin occupying and operating in a newly constructed space which occurs after the contractor has either completed all work or has substantially completed his work to the satisfaction of all applicable regulatory agencies and the owner. Date of Beneficial Occupancy (DBO) must be authorized in writing by the Building Department and/or DIA Engineering.
Design Acceptance	Written documentation that a project is ready for construction as submitted to DIA Planning and Engineering Division. Please note: Having successfully been awarded a contract with the City is not "Design Approval" for construction.
Design Development Design Phase	The stage after schematic design and before construction documents in the Design Phase of the work. This stage further develops the schematic design concepts into final configurations, size, color, materials, reflects code and other regulatory requirements etc., which closely represents completed design. Completion of the design development phase (also called DD's) should also include estimated construction cost estimates.
Design Phase	All work, including contract negotiations, up to the actual bidding of a project for an installation and/or construction; work prior to the construction phase; includes schematic design, design development and construction document

	work.
DIA	Denver International Airport.
DIA Engineering	The department that approves, reviews and manages Tenant and City design and construction projects within the boundaries of Denver International Airport.
DIA Rules and Regulations	DIA rules and regulations governing the Denver Municipal Airport System. http://www.flydenver.com/diabiz/info/research/rules/index.htm
Disadvantaged Business	A business that is certified by the Mayor's Office of Contract Compliance (MOCC) to operate as a Disadvantaged Business Enterprise.
EGs	The Environmental Guideline (EG) Catalog is a collection of documents that describe business and industrial activities conducted at DIA that require the management of environmental risks. Identification of these activities was achieved by reviewing the business processes and activities conducted by employees, tenants, and contractors at DIA, and establishing which activities involved environmental impacts.
EMS	Environmental Management System is a system approach to managing an organizations environmental aspects. DIA's EMS conforms to ISO 14001.
EPM	Engineering Project Manager
Graphic Committee	The group in DIA Planning and Engineering Division that reviews and approves all new and revised publicly viewed signage.
Ground Transportation	The various types and modes of transportation available to the arriving passenger, such as taxi, limousine, rental cars, bus and similar passenger transportation services.
Key Plan	A small plan of building showing the locations) of the tenant space and indicating floor level and/or room number with compass point orientation designated.
Mayor's Office of Contract Compliance (MOCC)	Administers the Minority Business Enterprises (MBE), Women Business Enterprises (WBE) and Disadvantaged Business Enterprises (DBE) for the City.
Pre-Design Meeting	A required meeting with the Tenant and his designer(s) with DIA Planning and Engineering Division prior to any formal or

completed designs. The purpose of the meeting is to advise the Tenant and his designer(s) of current design policy and requirements.

Pre-Work Meeting

Schematic Design

Preliminary design which resembles the idea, style, intent and direction of the design; not a finished detailed design ready for construction; part of the design phase; sometimes referred to as a conceptual design.

Surety

A third party which guarantees against any loss, damage or default or a designated party regarding all terms and provisions of a legal agreement.

Tenant Payment Bond

Tenant Payment Bond is required by the City and County of Denver. The Tenant Payment Bond shall be in the amount equal to 100% of the construction contract price. The Tenant Payment Bond shall guarantee to the City prompt and faithful payment of the said contract by the Tenant directly to the Contractor. Risk Management is the regulatory City agency requiring Tenant Payment bonds.

Tenant Performance Bond

Surety payable to the City guaranteeing a Tenant's full and faithful performance of all the terms and provisions of the executed lease; such Tenant performance bond is regulated by the DIA Property Office.

Terminal

The area of the airport where passengers typically arrive and depart by vehicles, contains ticketing, baggage claim, ground transportation, concessions and office areas. At DIA designated as Terminal East or Terminal West.

CHAPTER 8 PROPRIETARY SYSTEMS

SECTION 401 - DENVER INTERNATIONAL AIRPORT PROPRIETARY SYSTEMS CONTRACTORS

401.1 GENERAL

Various mechanical, life safety, communications and controls systems within the tenant's facility must be integrated with existing base building systems for the proper functioning and operation of both the tenant's facility and base building systems. To maintain the integrity of those systems and to assist tenants in accomplishing modifications or additions to those systems, Denver International Airport maintains a proprietary relationship with specific system providers / support firms or in the cases where Denver International Airport has developed detailed specification for systems interface, coordination must be done with the designated DIA systems engineers / technicians.

Below is a list of those support firms / individuals which must be utilized by the tenant during the planning, design, construction and commissioning phase of the tenant's project. The tenant will be responsible for all planning, design, construction, systems installation and commissioning cost / professional services design fees associated with the integration of these various systems the tenant's facility.

Contact with these proprietary systems contractors / DIA technicians must be accomplished through the Tenant's DIA Project Manager.

- **Premise Wiring Communication System (PWCS)**
System consisting of mechanical, electrical & electric hardware, and computer software providing a communication path for data, voice, and video networks.
Qwest Government Services 303-342-4733
- **Voice Paging System**
The system manufacturer is Innovative Electronic Devices (IED). The audio engineer must be experienced in designing IED systems. Likewise, the installation will require a sound system contractor that has IED factory-trained technicians, and experience installing IED systems.
IED 502-267-7436
- **Closed Circuit Television System(CCTV)**
This system has been addressed previously by Terry Gould. The info is a little extensive and includes the various types of devices that can be compatible with DIA's CCTV switch.
Terry Gould 303-342-2945
- **Multi User Flight Information Display System (MUFIDS)**
Intersystems 303-858-1000
Vermon Caswell Consulting 303-619-5698

END OF CHAPTER 8

City &
County of Denver
Denver International Airport

Tenant Development Guidelines

2

2010 REVISIONS

Volume 2 of 2

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2	Getting designs approved
3	Preparing for construction
4	Construction
5	Moving In
6	Directory
7	Glossary
8	Proprietary Systems

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**TENANT DEVELOPMENT GUIDELINES
MANUAL 2
DESIGN STANDARDS AND CRITERIA**

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INTRODUCTION

Manual Two consists of two parts. The first part of the manual discusses general design criteria for architectural, mechanical, electrical, signage and communication systems common for all Tenants. The second part, which consists of "Appendix "A" thru "F" outlines design criteria specific to different types of Tenant; i.e " Airlines, "Food & Beverage", "Retail", " Car Rental; etc, etc. Both parts are considered general in nature and are not all inclusive. All Tenants are strongly encouraged to review individual design concerns with the Airport during the early stages of their design to ensure their design meets with the approval of Airport.

PREFACE

The Denver International Airport (DIA) Design Standards have been developed to insure a unified and consistent approach to the thematic and technical design for the Denver International Airport. These standards are for use and strict implementation by all Consultants under contract to DIA, to tenants, and all other Consultants under contract to any other entity for the design of projects at the Denver International Airport.

The Standards Manuals are intended to be working documents, which will be revised and updated, as required, to address the general, conceptual, design and technical standards for all areas of design for the DIA.

The Design Standards shall not be quoted, copied or referenced in any bidding or construction contract documents. All information contained in these standards must be fully explained and shown in all bidding and contract documents.

REVISIONS

Date	Remarks
2/1/1996	Original Issue of Volume 2
10/13/2000	Modifications to Chapters 1&4, Appendix A and Appendix B
2/20/2000	Modifications to Chapter 1, new chapter 6
2/25/2002	Modifications to Chapter 4, new chapter 7
3/2005	Modifications to Chapters 2,3 & 4, Appendix D and Appendix E
10/2005	Modifications to all Chapters and all Appendices
10/2006	Modification to Chapter 2
2007	Modifications to all Chapters and all Appendices
2009	Modifications to all Chapters and all Appendices

CHAPTER 1 ARCHITECTURAL

SECTION 101 - WALL SYSTEMS

101.1 GENERAL

The most common type of wall constructed by Tenants will be the Gypsum Board Wall System utilizing metal studs and gypsum board finish. To achieve the quality of standard acceptable to the Airport Tenants shall comply with the following criteria:

Distance between ceiling control joints shall not exceed 50 feet in any direction and where ceiling framing changes direction.

Distance between control joints in partition, wall and wall furring runs shall not exceed 30 feet.

Control joints shall be installed where building control joints occur.

Framing and furring members shall be minimum 25 gauge and comply with the following:

- A. Use 3-coat finish system for all exposed work.
- B. Water-resistant gypsum backing board shall comply with ASTM C 630.

Glass mesh mortar units may consist of coated gypsum panels, cement-coated portland cement panels or vinyl-coated portland cement panels.

Gypsum sheathing shall be a minimum of 5/8", Type X, square-edged, 2.5 pounds per square foot, plain or water resistant core and water repellent surface.

For sound control construction, provide a minimum 1/4" bead of acoustical sealant at perimeter of partition, seal around all cutouts and avoid back-to-back penetrations.

Metal trim and accessories are to be corrosive resistant coated steel installed with screws.

Use water resistant gypsum backing board or cement backer board for ceramic tile substrates.

Federal specifications shall be specified for sound attenuation blankets.

101.2 TEMPORARY CONSTRUCTION

Any temporary wall construction erected for the purposes of screening off an area during construction must meet with the approval of the EPM. Unless otherwise approved by the EPM the walls shall be constructed of 20 gauge steel studs, spaced 24" O.C., utilizing both a top and bottom track for anchoring the studs. Top and bottom tracks are not to be anchored into the floor or ceilings. Walls shall be braced at the bottom by using angle kickers weighted with 20 lb. sand bags. Walls shall be braced from the top by either securing the wall to the structure above, where permissible, or by securing diagonal corner bracing near the top of adjoining walls. Temporary walls constructed in areas like the AGTS Stations in the Concourses or under the Tent Structure in the Terminal Building may be stabilized utilizing diagonal corner bracing.

One layer of 5/8" Gypsum Board, TYPE X, shall be placed over the stud wall exposed to the public side. The gypsum board shall be screwed to the studs, screws being placed 12" apart. The wall

shall be taped and floated, one side only, public side, with a minimum of one coat primer and one coat paint evenly applied to the gypsum board. Paint shall be a satin finish; color shall be medium gray.

In areas where the temporary walls will abut the underside of a ceiling, soffit or other similar structure, a 1" gap shall be left between the top of the wall and the bottom side of that structure. Either polyethylene backer rods or polyurethane foam material shall be placed in the 1" gap to prevent dust or smoke from within the work space from entering other areas.

All walls shall be constructed in accordance with the latest edition of the Denver Building Code and shall be removed upon completion of construction. Any damage to existing facilities caused by the erection and demolition of the temporary walls shall be promptly corrected by the contractor responsible for the construction and demolition of the walls.

For concession projects with a duration exceeding 1 week, the wall shall be covered in an applied vinyl graphic. The intent of the graphic is to bring interest to the upcoming concession location. The design of the graphic shall be submitted to the EPM for review and approval, and shall be on site prior to commencement of the temporary wall erection.

SECTION 102 - FLOOR SYSTEMS

The choice of materials for flooring is at the discretion of the Tenant subject to approval by the Airport. At all times however, when the Tenant's proposes a new flooring system which requires matching an existing flooring system installed by the City, the determination on whether the match is achieved shall rest with the EPM. Shall the EPM determine that the floor does not match the Tenant shall be required to redo the floor until it meets with the approved by the EPM.

The Tenant shall be required to x-ray existing floor systems if he proposes to penetrate that floor system for the purpose of installing any type of mechanical, plumbing, electrical or telecommunication conduit, pipe or any other type of penetration.

The Tenant shall be required to X-Ray or employ Ground Penetrating Radar (GPR) testing before making any through penetrations in a cementitious floor, ceiling or wall system. Pilot locating holes are not allowed. X-Rays or GPR test reports shall be submitted to the DIA Project Manager for review prior to performing penetrations. If x-raying is the chosen method, an x-ray safety plan must be submitted for review. The safety plan shall include a map of the areas to be cordoned off, a count of required individuals to maintain the cordoned area, and other pertinent information to the safe operation of the x-ray process.

Powder-actuated fastener devices are not permitted to be used. This includes powder actuated devices, pneumatic actuated devices, ram sets or manual set drive pins.

All floor penetrations shall be water sealed and fire stopped/caulked using an approved UL Listed system; details of these assemblies shall be submitted for review and approval.

Ground Fault/Electronic Drill Stop Device drills shall be used for drilling into the floor and ceiling for anchors.

SECTION 103 - CEILING SYSTEMS

103.1 ACOUSTICAL CEILING PANELS

Acoustical Ceiling Panels shall meet the following physical properties:

- A. Surface burning characteristics:
 - 1. Flame spread: Maximum of 25, UL Class
 - 2. Smoke development: 50 or less.
- B. Thermal resistance:
 - 1. 185 R for acoustical panels.
 - 2. 0.45 R for gypsum board panels.
- C. Minimum thickness:
 - 1. Acoustical panel: 5/8".
 - 2. Gypsum panel: 1/2".
- D. Sound transmittance coefficient (STC): 30 minimum.
- E. Noise reduction coefficient (NRC): 0.45 minimum.

Acceptable panel types include mineral fiber - either wet felted or cast molded, rated and non-rated, rated gypsum panels.

Provide design analysis of windup-lift from jet blast in appropriate areas.

Require retention clips on exterior soffit installations.

Accessible type ceilings system must be provided in all areas where existing shut-off valves for utility systems are located.

103.2 CEILING SUPPORT SYSTEM

Suspension system shall be grid type, either exposed or concealed, to accept various types of ceiling panels and/or gypsum wallboard.

System components shall support the ceiling assembly with maximum deflection of 1/360 of the span of any component.

Required tolerances of installation: level within 1/8" in 12' - 0" in any direction.

Where system is to be installed in high moisture environment, such as commercial kitchens, lavatories, showers or swimming pools, require use of roll formed aluminum grid.

Where system may be exposed to high moisture levels and corrosive vapors, require use of stainless steel.

Assembled system shall comply with the requirements of a "heavy duty" structural classification.

Manufacturer's standard modules shall be acceptable. Avoid layouts which will produce border areas less than 1/2 of ceiling panel width wherever possible.

System shall be supported directly from structure or may be indirectly supported by a secondary intermediate support system which will provide stiffness equal to that of the originally tested elements.

Hangers shall be spaced not more than 12" from ends of supports no more than 48" c/c.

Hanger wires shall be 9 gauge galvanized steel installed 48" c/c maximum.

Lighting fixtures and mechanical diffusers shall be independently supported at all four corners.

At exterior installations, provide vertical stiffeners with positive attachments at top and at grid to prevent wind uplift.

Edge moldings shall be mechanically fastened at perimeter of ceiling and at penetrations through ceiling system. Include bead of acoustical sealant at all edge moldings.

The use of powder-actuated fastener devices are not permitted to be used. This includes powder actuated devices, pneumatic actuated devices, ram sets or manual set pins.

SECTION 104 - FINISHES - PAINT

Paint and finishes shall have a Class A, 0-25 flame spread rating when applied to a noncombustible surface.

Acceptable types of finish coatings, whether transparent, translucent or opaque, include solvent based and water based systems.

Paint and finish systems shall be of compatible materials from substrate to the finish coat.

Specify specific surfaces which are to receive painted and finish systems. Generally, all exposed surfaces shall receive a factory or field applied finish systems. Field painted or finish systems shall have a minimum of two finish coats.

Specify specific surfaces which do not require painted and finish systems.

Comply with ANSI/OSHA established color code required for color marking physical hazards, safety equipment locations, fire and other protective equipment.

Mechanical piping may be painted the same color as adjacent surfaces. Piping shall be identified by color bands and legends at areas adjacent to valves, couplings and at wall penetrations. Refer to Mechanical Design standards for requirements.

Interior masonry, plaster and gypsum wallboard shall be coated with a primer-sealer prior to application of finish coat. At masonry applications, primer-sealer shall be fill coat compatible with finish coat system.

Require exterior CMU to receive waterproof coating where applicable.

Painting over code required labels, equipment identification, performance rating, name, or other nomenclature plates, is not allowed.

Specify surface preparation requirements for each surface and type of paint or finish system specified. General requirements are as follows:

- A. Concrete: Surface shall cure 60 days minimum, remove latence and form oils by detergent washing (avoid sandblasting), floors may require chemical etching and/or bonding primer.
- B. Concrete masonry units: Construction shall cure 30 days minimum, thoroughly clean with stiff fiber brush to remove loose sand granules, mortar spatters may be removed with high pressure spray.
- C. Exterior wood surfaces: prime all surfaces prior to erection.
- D. Ferrous metal: Specify required method of preparation to be in compliance with Steel Structures Painting Council (SSPC). Include application of rust-inhibiting primer, coordinate application of primer with requirements of cementitious fireproofing Section 07255.
- E. Galvanized metal: Thoroughly clean surfaces with rags saturated with mineral spirits then prime.
- F. Aluminum: Abrade non-corroded surfaces with fine steel wool, wipe clean with rage saturated with mineral spirits.
- G. Plaster/stucco: Surfaces shall cure 30 days minimum.

SECTION 105 - STOREFRONTS / COMMONS AREAS

105.1 STOREFRONTS

Criteria for storefronts can be found in the Appendices of TDG Manual 2.

Neutral Strips separating tenant storefronts in the Terminal are provided by the Airport. Neutral Strips in the Concourse Buildings shall be as manufactured by Gordon, Inc., Model 735-75R extruded aluminum, (2-Piece extension), or approved equal. Provide a 6" tall cover piece at base. Provide a single cover piece from base to soffit. Provide a single base piece floor to soffit. "Kynar" or equal finish. Color to be as approved by the EPM.

Overhead coiling grilles shall be concealed when in the Open Position.

Storefronts shall maximize their transparency at the storefront opening; typically 85%. There shall be a continuous break in storefront material at 6 feet above the floor.

105.2 COMMONS AREAS

There are several areas adjacent to the "Food & Beverage" Tenants which are considered "commons areas". These areas are shared areas and are not part of any one Tenants lease area. The City is requiring the "anchor" tenant in each of these areas to develop the areas. The design of the areas are to be generic in appearance and are not to reflect the decor of the anchor tenant.

105.3 MAIL COLLECTION BOXES

Collection boxes shall be Cutler 5029A, 5710, or 5710-3 as volume indicates unless approved by the EPM. The unit shall be recessed mounted, finish to be # 4 Stainless Steel. Wall locations for installation shall be as approved by the EPM.

SECTION 106 - KIOSKS

106.1 GENERAL

This section is intended to provide Tenants with the framework of application within the stated guidelines. Integration of the tenant kiosks into the visual concept of the airport shall be a requirement. Design criteria regarding the use of materials, signage and lighting requirements shall be as defined below. Lighting, storage and security means are to be integrated into the overall design.

Each kiosk will have its own identity and be perceivable as a space in and of itself. Tenants shall seek a unique image while remaining consistent to the retail aims the Airport seeks to achieve in the retail opportunities throughout the Airport. All kiosks shall be intended for display of merchandise in an exciting and promotional manner.

Kiosks shall be defined as stationary in nature, having a leased area less than 120 square feet and greater than fifteen square feet (15 SF) and constructed in a manner in which they cannot be readily moved.

Kiosks may be located only within the designated areas of the Terminal and Concourses depicted on DIA Kiosk Master Plan for Concessions dated October 2000. Copies of this Master Plan are available from DIA's Property Office.

106.2 TENANT RESPONSIBILITIES

The Tenant shall be responsible for the design, construction, installation, maintenance and removal of kiosks. The Tenant shall also be responsible for the design, construction, installation, maintenance and removal of utilities required for the operation of the kiosks.

106.3 OPERATIONAL REQUIREMENTS

Tenants shall not be permitted to promote or advertise their product or services outside the limits of their lease area. Tenants shall not be permitted to use loud speakers, amplifiers, music, or any other method of audio media to attract customers.

Kiosks shall be secured when not in operation. The appearance of the closed kiosk is an aesthetic consideration. Concealed security doors are preferred. All Tenant literature displays are considered permanent displays and must be recessed in the kiosk front or organized in a display. Method of displaying literature shall be subject to review and approval by the Tenant Development Review Team (TDRT).

Literature will not be stacked, piled, boxed, crated, or otherwise sit on top of the kiosk counter without being organized within a display unit, subject to review and approval by the TDRT.

Signage may not be removed and relocated from its approved location unless approval is granted by the TDRT.

Temporary ("Back in 5 minutes", etc.) freestanding counter signs may be used if pre-approved by the TDRT.

106.4 DESIGN REQUIREMENTS: GENERAL

All kiosk design shall be subject to review and approval of the TDRT. Creative solutions are encouraged.

The distinguishing feature of a kiosk is to be open on a minimum of three (3) sides, If a kiosk is to be approachable from four (4) sides, its design must accommodate this.

Kiosks shall not extend beyond the tenant lease line. Pop-outs, nay windows or other projections that extend beyond the lease line is prohibited.

Canopy structures and/or ceilings shall be restricted to those in which visibility of adjacent Airport/Tenant spaces or signs are not impaired.

All kiosk designs shall comply with all requirements of this section regardless of whether or kiosk may be considered temporary or permanent.

106.5 DESIGN: MATERIAL AND FINISHES

The materials and finishes outlined in this section shall be utilized to support and enclose all tenant kiosks. The enclosure shall provide a consistent appearance with adjacent retailing themes.

Material selection should emphasize the use of products that are aesthetically pleasing and perceived as high quality and permanent. Select materials that are expected to be available in the future.

Surface material must be of commercial grade, exhibit a matte and even appearance, and must be resistant to dents, scratches, nicks and other deformities caused by normal operations.

Exposed joints shall be minimized.

Color and finish must be fade resistant, have an uniform color intensity throughout the finish, and must not exhibit visual changes in color and the even appearance of the material when scratched or subjected to fingerprints.

Material hues should be subdued and contextual to the surrounding Airport architecture. An exception to this would be accent colors and signage.

Assembly of components must be concealed by mechanical fasteners and must be rigid, sturdy and give an overall neat and unobtrusive appearance, showing no loose or poorly constructed joints.

Gates shall be provided with adequate blocking in support wall hinge location.

Trims and edge protections shall have a smooth and durable finish.

Hardware shall be of commercial grade, stainless steel brushed finish as appropriate; master keying system for all locks.

All storage items shall be concealed: no exposed shelving, coat hooks, etc. are permitted.

106.6 DESIGN: BACKWALL UNITS

Use of a kiosk backwall shall be subject to review and approval of the TDRT. The backwall unit shall be designed to be compatible with the surrounding environment. Materials shall emphasize the use of products that are aesthetically pleasing and perceived as high quality and permanent. Length of the backwall unit shall not exceed the length of the front counter unit of the kiosk. Storage shall be permitted within the backwall unit provided it is concealed and secured.

106.7 DESIGN: LIGHTING

Accent lighting or track lighting may be used to highlight merchandise and/or Signage. Such lighting source shall be located within the Tenant's leased area. Low voltage lighting is recommended.

General illumination shall be glare free fixtures with color-corrected lamps. No H.I.D. lighting shall be used.

Fluorescent fixtures shall be selectively used. It shall be recessed and the shielding shall either be metal, parabolic or plastic parabolic. No acrylic lens shall be allowed.

Strobe, spinner, luminaire or glitter strips fixture types are not permitted.

Display areas may be lit with track light pendant type fixtures. Such showcases and display cases shall be adequately ventilated. Low voltage lighting is recommended for display areas.

New technology lighting sources will be considered, if application is deemed appropriate by the Airport and in compliance with applicable codes.

Fixture must be readily accessible for maintenance. Tenants shall be required to maintain their own fixtures.

The use of neon may be permitted provided it is not part of the signage and that it is used in a manner that will not cause conditions of visual clutter by competing with Airport informational and/or directional signage. The Airport reserves the right to limit the use and character as well as placement of neon within the Tenant's premises.

106.8 DESIGN: SIGNAGE

Signage will be reviewed on the basis of creativity, uniqueness, and quality of detailing and character. The character of all signage and logos shall be an extension of the kiosk and must be integrated with the architectural elements of the kiosk. All signage shall be subject to review and approval by the TDRT.

Signage shall be utilized in a creative and contemporary manner benefiting the tenant type, merchandise or service provided.

All signage shall be located within the kiosk space.

Colors, materials and design are subject to TDRT review and approval and shall conform to these criteria as well as current Airport signage requirements and guidelines. **Neon signage is not permitted. Illuminated signage is not permitted.**

Signage or graphics shall be permitted only within a designated "graphic area" as identified by the Tenant and approved by the TDRT. Messages, notes, etc. meant for tenant employees operating the kiosk should be located under the counter and shall not be visible to the normal public traffic.

No freestanding tenant signage is allowed inside or outside the kiosk.

All signs shall be fabricated in a professional commercial quality manner.

The following types of signs, sign construction and devices are prohibited:

- A. Hand lettered, paper, cardboard, cloth and similar stickers or decals.
- B. Boxed or cabinet type, unless recessed and an integral part of the kiosk design.
- C. Strobe or other harshly lit signage
- D. Moving, rotating or noise making.
- E. Temporary signs, notices or advertising which is not integrated into the kiosk signage. (This may be allowed subject to prior approval by the Airport).

106.9 DESIGN: SIGNAGE MESSAGE

Signage may contain primary and secondary messages. Primary (dominant) message shall identify the tenant. Secondary (less dominant) message shall reference the merchandise or service provided. All sign messages shall be subject to review and approval by the TDRT.

Size of letters, logos and graphics shall be designated to be proportionate to the kiosk design and shall be subject to review and approval by the TDRT. The maximum signage letter height shall be no larger than six inches.

Letters and logos painted or etched directly onto glass shall be of professional quality and follow all signage criteria established herein.

Signage may have two or three dimensional characters.

END OF CHAPTER 1

CHAPTER 2 MECHANICAL

SECTION 201 - GENERAL

201.1 INTENT

The Tenant Mechanical systems consist of HVAC, Plumbing, Fire Protection, Automatic Controls and Process Systems located in the Terminal Buildings, the Airport Office Building (AOB), Concourses and Outlying Support Buildings. The Tenants are passenger and non-passenger Airline Tenants, Car Rentals, Sales and Concessions, Consumer Services and Operational Services in the Outlying Support areas. The goals and objectives are to develop a Mechanical Tenant design to achieve an efficient, economical, maintainable and reliable installation consistent with the goals and objectives of the Airport/City and County of Denver.

The Tenant space environment shall be designed to be controllable within acceptable year around comfort and health levels. The Tenant shall utilize the latest state-of-the-art, energy conservative, readily available equipment and components based on proven design techniques.

201.2 GENERAL

Tenant shall prepare the design, construction documents, drawing and specifications for HVAC equipment, ductwork and piping, exhaust equipment, controls, insulation, structural, plumbing, fire protection, automatic control systems and operational services such as aircraft and vehicle fuel and glycol systems. The designer shall coordinate the Mechanical design with the applicable sections of the Architectural, Electrical and Electronic requirements of Tenant Design Guidelines and DIA Design Standards Manuals 1 and 4.

Most Tenant areas in the Terminal and Concourses have services of adequate capacity to supply reasonable amounts of hot or chilled water, gas, electricity, potable water, fire protection, sanitary waste, grease waste and storm sewer capacity to serve the Tenant areas. Most Tenant areas in the outlying areas have gas, electricity storm and sanitary sewer services available. Verify existing system availability from the DIA Project Manager assigned to the Tenant project.

All Construction Documents shall be developed by the Tenant and reflect a complete engineered design. The installing contractor may perform certain engineering tasks, such as the Fire Protection, but the Tenant is responsibility for the total overall design.

All heating and cooling equipment, exhaust ducts, vents, pipes vent stacks, mechanical equipment, and mechanical systems shall be enclosed form view in a manner that is architecturally/materially compatible with the Tenant facility.

201.3 REGULATORY REQUIREMENTS

Specify that Tenant work shall be per Underwriters, Public Utility, Local, State and Federal Codes, Ordinances and applicable regulations. Work shall also comply with latest editions of all applicable codes, ordinances and regulations in effect as of the date of the Contract Documents, If discrepancies occur between the Contract Documents and any applicable codes, ordinances, acts, or standards, the most stringent requirements shall apply. Where hourly fire ratings are indicated or required, provide components and assemblies meeting requirements of the American Insurance Association, Industrial Risk Insurers, Factory Mutual Insurance Association and listed by Underwriters Laboratories, Inc.

201.4 RELATED DOCUMENTS

The design documents shall be in accordance with the applicable sections of the General Criteria as contained herein, and the Technical Guidelines. The guidelines are not necessarily all-inclusive or absolutely mandatory. Exceptions will be considered but must be approved in writing by the Project Manager. Additional requirements for design may be found in DIA Design Standards Manuals 1 and 4. Supplemental information is provided in DIA standard specifications.

201.5 REFERENCE STANDARDS

Comply with the requirements of the reference standards listed below. If there is a conflict between reference standards, Technical Specification Guidelines or the Tenant's Contract Documents, the more stringent shall prevail. Reference standards are listed elsewhere in the TDGs. A listing of applicable Mechanical reference standards is as follows:

- A. International Building Code (IBC).
- B. International Mechanical Code (IMC).
- C. International Plumbing Code (IPC).
- D. International Fire Code (IFC).
- E. International Fuel Gas Code (IFGC).
- F. International Energy Conservation Code (IECC).
- G. Denver Amendments and Revisions to the Building and Fire Codes.
- H. National Electric Code (NEC).
- I. National Fire Protection Association (NFPA).
- J. American Society of Mechanical Engineers (ASME).
- K. American Society of Testing Materials (ASTM).
- L. American Water Works Association (AWWA).
- M. Air Diffusion Council (ADC).
- N. Air Moving and Conditioning Association (AMCA).
- O. Air Conditioning and Refrigeration Institute (ARI).
- P. American National Standards Institute (ANSI).
- Q. Cast Iron Soil Pipe Institute (CISPI).
- R. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
- S. Electronic Industries Association (EIA).
- T. National Electrical Manufacturers Association (NEMA).
- U. Instrument Society of America (ISA).
- V. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA).
- W. Underwriters' Laboratories (UL).
- X. Environmental Protective Agency (EPA).
- Y. Electrical Testing Laboratories (ETL).

- Z. National Environmental Balancing Bureau (NEBB).

201.6 WORK SEQUENCE, COORDINATION & INSTALLATION

Develop Tenant Project Documents so that work is furnished and installed in logical sequence and performed in an expeditious manner for efficient flow of work. Particular attention is to be given to the positioning of large equipment items and tie-ins to existing systems that will require system shutdowns. Progress of mechanical work shall be coordinated with other trades.

Verify all site conditions and dimensions by field measurements. Chases, slots, and openings shall be verified and designed to allow for mechanical installation. When mounting heights are not specifically detailed or dimensioned, systems, materials, and equipment are to be installed so as to provide the maximum headroom possible with minimum headroom of 7'-6". If there are spaces with finished ceilings, the systems shall be of adequate height above the ceiling.

All systems that require periodic servicing or equipment replacement shall be readily accessible from the space thru the ceiling. Coordinate connection of mechanical systems with exterior underground and utility services.

Mechanical systems, materials, and equipment installation shall conform with approved submittal data. Where coordination requirements conflict with individual system requirements, conflicts are to be resolved by the Tenant. Systems, materials, and equipment are to be designed level and plumb, parallel and perpendicular to building coordinates, systems and components.

Mechanical equipment installations shall be located to facilitate servicing, maintenance, and repair or replacement of equipment components.

Equipment shall be designed and installed for ease of disconnection, with minimum of interference with other installations. Grease fittings are to be extended to an accessible location. Access panel or doors are required where units are concealed behind finished surfaces. Systems, materials, and equipment are to be installed to provide right-of-way priority to piping systems required to be installed at a specific slope and those that are most costly to install.

Contract Drawings shall indicate general arrangement of mechanical systems. Information shown may be schematic. Field verification by the designer of all existing Architectural, Mechanical, Electrical, Civil and Structural system locations is required.

Drawings and specifications are to complement each other. The Tenant shall state that any work, materials or equipment indicated on the drawings but not described by the specifications, or described by the specifications but not shown on the drawings. In case of a conflict the contractor shall obtain clarification from the Tenant in writing prior to bidding the job. After the job is bid the conflict shall be resolved at the sole discretion of the Tenant.

Although the General Criteria may not be specifically indicated, design and specify all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a complete mechanical system.

201.7 DEFINITIONS

- A. "BTU": British Thermal Unit
- B. "City": All City and County of Denver Agencies and Departments that have

- applicable Airport Tenant Project jurisdictional codes and/or regulations.
- C. "CFM": Cubic feet per minute.
 - D. "Concealed": Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces, in soffits, or in enclosures.
 - E. "Contractor": Tenant's Contractor and Sub-contractors
 - F. "Control or Actuating Devices": Automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.
 - G. "DIA": Denver International Airport
 - H. "Exposed": Not installed underground or "concealed" as defined above.
 - I. "Furnish": To supply and deliver to the project site, ready for unloading, unpackaging, assembly and installation as applicable to the project unless noted otherwise.
 - J. "GPM": Gallons per minute.
 - K. "HVAC": Heating, ventilating and air conditioning systems.
 - L. "Indicated," "Shown" or "Noted": As indicated, shown or noted on the Concessionaire's Approved Drawings or Specifications to be issued at a later date.
 - M. "Install": Operations at the project site including unloading, unpackaging, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protection and cleaning as applicable to the project unless noted otherwise.
 - N. "Material": All mechanical system components required for project construction including equipment.
 - O. "Mechanical Systems": HVAC, Plumbing, Fire Protection and related Control Systems as contained herein.
 - P. "Motor Controllers": Manual or magnetic starters (with or without disconnects), individual push buttons or hand-off-automatic (HOA) switches controlling the operations of motors.
 - Q. "Piping": Pipe, tube, fittings, flanges, valves, controls, strainers, hangers, supports, unions, traps, drains, insulation, and related items.
 - R. "Project Manager": Tenant Project Engineering representative of the City and County of Denver (CCD)/ Department designated by the Aviation Airport's Deputy Director of the Aviation/Planning & Engineering Division.
 - S. "Provide": To "Furnish" and "Install" as defined herein.
 - T. "Related Work" includes, but is not necessarily limited to, mentioned work associated with, or affected by, the Work specified. All "related work" is included as Work of this Division unless otherwise specifically excluded.
 - U. "SF": Square feet.
 - V. "Similar" or "Equal": Equal in materials, weight, size, design, capacity, performance, and efficiency of specified product.
 - W. "Supply": To purchase, procure, acquire and deliver complete with related

accessories.

- X. "Tenant": Lessee to the CCD/Airport. Includes the Tenant's Architectural/Engineering Consultant(s).
- Y. "TDG's": DIA Tenant Development Guidelines
- Z. "Wiring": Raceway, fittings, conduit, wire, boxes and related items.
- AA. "Work": Labor, materials, equipment, fixtures, trim, apparatus, controls, accessories, and other items required for proper and complete installation.

201.8 LOCAL CONDITIONS

The Tenant shall field verify the site location and availability of existing mechanical and electrical systems and the building structure. The Tenant shall examine site premise and utilities to become familiar with existing local conditions affecting work, such as obstructions, levels necessary cutting, before submitting the design. No allowance will subsequently be made by reason of any misunderstanding with respect to existing site conditions. project prior to the initiation of the design. All possible interferences inhibiting routing of services shall also be verified.

201.9 PERMITS, LICENSES, FEES, AND INSPECTIONS

The Tenant's Contractor shall obtain, pay for, and maintain all required permits, licenses, tags, and certificates of inspection.

201.10 OBSERVATION OF THE WORK

The Project Manager may make periodic visits to the project site to observe the general progress and quality of the work. A DIA Mechanical Inspector, independent of the Denver Building Department, will make daily on-site observations to check the quality or quantity of the work and will not be responsible for the Contractor's failure to carry out construction work as directed by the Tenant's Contract Documents or for any unsound or unsafe construction procedures or practices adopted by the Contractor.

The Tenant shall provide the opportunity for the Project Manager to examine all work prior to concealment. This includes all interior roughing-in of piping, ductwork or equipment prior to insulating or other concealment. The Tenant's Contractor shall notify the Project Manager in writing at least 48 hours prior to concealment.

201.11 FINAL OBSERVATION

Prior to final observation by the Project Manager, all Work under the contract shall be completed and all systems shall be in proper working order and placed in operation. All HVAC systems shall be properly balanced with quantities shown on the Tenant's Drawings, and all water circuits shall be adjusted to provide the proper flows.

All equipment shall be cleaned, including but not limited to, plumbing fixtures. All debris and construction materials shall be removed from the DIA property to a suitable landfill off-airport.

The temperature control system shall be complete and in proper working order. All instruments shall be properly and accurately field calibrated.

At the request of the Project Manager, a representative of the Contractor who is thoroughly familiar with the Project and operation of the various systems shall be present during the final observation to demonstrate proper operation of the equipment and controls. If requested by the Tenant, the Contractor shall have representatives from his subcontractors present to assist during final

observation.

201.12 CONTRACTOR SUBMITTALS

Assist the Contractor in preparation of project field record documents and information contained herein. The Contractor shall keep in his custody during the entire period of construction a current set of as-built drawings indicating all changes that have been made from the Tenant's contract drawings. The in-progress record drawings shall be kept clean and in good condition, and shall be available for inspection at any time by the Project Manager.

As-built drawings shall show accurate locations of all underground utilities and piping which have been installed outside of the building. Locations shall show accurate dimensions measured from the building lines or other permanent reference, plus invert elevations related to the established datum for the project. Drawings shall be submitted to the Project Manager for approval.

Record documents shall be delivered to the Project Manager, in accordance with section "Tenant Submittals" prior to the final observation. Submit certificates of final inspection and acceptance from authority having jurisdiction.

Before requesting acceptance of work, submit for review three (3) copies of Equipment Operation and Servicing Manuals to the Tenant, including but not limited to the equipment and components, descriptive literature, for exact equipment installed, not manufacturer's complete product line including performance data, model number, instructions for assembly, alignment and checking, installation and operating instructions, maintenance and repair instructions, parts lists used for ordering replacements and repairs, recommended spare parts to be stocked, lubrication instructions and supplementary drawings required to show system operation and indicate operating, servicing and maintenance points.

Shop drawings and product data shall be thoroughly checked for compliance with contract requirements, compatibility with other equipment being furnished, accuracy of dimensions, coordination with work of other trades, and conformance with sound and safe practice as to erection of installation. Clearly mark printed material, catalog cuts, pamphlets or specification sheets, and shop drawings with the same designation shown on the Contract Document Schedules. Identify specific item proposed, showing catalog number, recess openings, dimensions, capacities, electrical characteristics, etc. Submittals which are incomplete will be returned to the Contractor without review. Contractor agrees that submittals processed by the Project Manager are not change orders; that the purpose of submittals is to demonstrate that the Contractor understands the design intent; and that the Contractor demonstrates this understanding by indicating which equipment and material it intends to furnish and install and by detailing the fabrication and installation methods it intends to use.

Preserve one copy of reviewed shop drawings for delivery to the Tenant upon final completion and acceptance of the Project. Maintain one copy of shop drawings until completion of the Project, and make this copy available, upon request, to the Tenant. No equipment or materials shall be installed or stored at the project site until submittals for such equipment or materials have been given review action permitting their use.

201.13 STORAGE AND PROTECTION

Store products in a location approved by the Project Manager in accordance with the requirements of DIA Standard Specifications and manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's current written instructions.

For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

201.14 GUARANTEE

All mechanical systems installed under this Contract shall be left in proper working order. Replace, at no cost to the City and County of Denver, any work, materials, or equipment which evidences defects in design, construction, or workmanship within two (2) years of date of final acceptance.

201.15 WORKMANSHIP

Workmanship shall conform to highest industry standards for each trade involved in installation of the Work.

201.16 TENANT SUBMITTALS

During the design phase of the new facility or facility modification and after the initial design scope development stage, the Tenant shall submit to the Project Manager progress drawings and specifications shall be submitted for review by the Owner at the 30%, 60%, and 90% stages of completion in accordance with DIA Design Standards Manual 1 and the Tenant Development Guidelines Manual 1. All Project Manager's comments shall be incorporated by the Tenant before the next stage of completion is submitted. Once the project is ready for bidding purposes, a complete set of project documents shall be submitted to the Project Manager along with any addenda. After the project is bid and the contract awarded, three sets (3) of mechanical submittals from the Contractor shall be submitted to the Project Manager.

The Tenant shall review the contractor submittals and submit one marked-up set to the Project Manager along with comments to incorporate any corrections before the set of submittals are returned to the contractor. All transmittals shall be conducted in writing as directed by the Project Manager.

During the progress of construction, one copy of any correspondence such as change orders, clarification requests, information requests between the contractor and the Tenant shall be submitted to the Project Manager.

At the completion of the project, two complete full size reproducible sets of "as built" drawings and one CD-ROM containing all drawing files (in latest AutoCAD format), specification files (in latest Microsoft Word format) and a bookmarked PDF file of project drawings and specifications of "as-built" conditions shall be submitted to the DIA for file record as directed by the DIA Project Manager.

201.17 ORDER OF PRECEDENCE

The precedence of mechanical construction documents are as follows: Addenda and modifications to the Drawings and Specifications take precedence over the original Drawings and Specifications. Should there be a conflict with the Specifications and Drawings, the more stringent or higher quality requirements shall apply.

Drawings of a larger scale shall take precedence over smaller scale. Figured dimensions take precedence over scaled. Note materials take precedence over graphic indications.

Should a conflict arise in dimensions or locations between Mechanical Drawings and Architectural Drawings, the Architectural Drawings shall have precedence.

201.18 DRAWINGS / SUBMITTALS

HVAC, Plumbing and Fire Protection drawings shall be provided to a scale of not less than 1/4" equals 1'-0" or larger for equipment rooms, details, toilet rooms, congested areas and sections; other plans to a scale of not less than 1/8" equals 1'-0" in accordance with the latest edition of the DIA Design Standards Manual 1. Drawings scales shall be selected to provide adequate detail on the installation and access of all equipment and systems. Each drawing shall have building columns a Key Plan with North Arrow up and a scale block. These drawings are to detail major elements, components and systems of mechanical equipment and materials in relationship with other systems, installations and building components. The drawings shall dimension locations where space is limited for installation and access and where sequencing and coordination of installations are critical to the efficient flow of the work.

The proposed locations of piping, ductwork, equipment, insulation and materials shall be indicated and include but not be limited to the following:

- A. Clearances for installation including insulation.
- B. Clearances for servicing and maintaining equipment, including replacement of heat exchanger tubes, drive belts, filters and space for equipment disassembly required for periodic maintenance.
- C. Equipment connections and support details.
- D. Exterior wall and foundation penetrations.
- E. Fire-rated wall and floor penetrations.
- F. Sizes and location of required concrete pads and bases.
- G. Valve stem movement.
- H. Control elements and other items requiring access for maintenance and/or adjustment.
- I. Location of equipment appurtenances, control hardware and piping and ductwork components required for service, replacement, adjustment and maintenance.

Drawings also shall be required for scheduling, sequencing, movement and positioning of large equipment into the building during construction. Floor plans, elevations and appropriate details are required to indicate penetrations in floors, walls and ceilings and their relationship to other penetrations and installations.

Airflow diagrams are required to show Tenant space pressurization with respect to surrounding areas. Piping flow diagrams are required to show usage of DIA utilities and services.

Composite reflected ceiling plan drawings are required to demonstrate coordination and integration of installations, return air outlets and inlets, exhaust air outlets, light fixtures, communication systems components, sprinklers and other ceiling-mounted items. The Design Engineer shall be responsible for all pipe and duct sizing, pipe expansion loop sizing, pipe anchor locations, duct and piping locations. Equipment and other critical items as defined herein shall be located exactly. These items shall be located by perpendicular equipment centerlines from building column centerlines. The contractor should not have to be responsible for any work not covered by his respective trade and trade practices. Although the drawing information is schematic in nature, the

drawings shall reflect the installed condition as close as possible. Ductwork shall be shown as double lines. Single line will not be permitted except for flexible ductwork. Pipe routing for 8" and larger shall be shown as a double line with a centerline. Drawing lettering large enough to be readable when drawing is reduced to half-size.

SECTION 202 - EXISTING SYSTEMS

202.1 GENERAL

The following is a general overview of the HVAC systems used in the base buildings at DIA. This narrative is general in nature and should not be used as the basis for specifications or control sequences.

202.2 EXISTING PRIMARY HEATING/COOLING SYSTEMS

Chilled water and heating water for the HVAC systems in the Terminal buildings, AOB, ATGS and Concourses is supplied from the Central Plant. Heating water is provided by hot water generators consisting of one (1) startup 17,000 MBH Boiler, and three (3) 60,000 MBH main boilers. Chilled water is produced by three (3) 4,150 ton centrifugal chillers and one (1) 3,250 ton electric driven centrifugal chiller.

The Hot Water and Chilled Water systems consists of boiler and chiller circuit or distribution piping loops located in the Central Plant and the utility tunnels below the AGTS tunnel. This circuit piping supplies the variable speed "transport" or primary loop pumps located at the terminal, Airport Office Building and the Concourses. The variable speed primary pumps delivers water to the constant volume "User" or Secondary loops that supply water to the coils in the air handling units, VAV, Fan Powered boxes, and other terminal air devices. The primary loop consists of pumps in parallel supplying a variable flow, as required by the demand sensed by differential pressure to the secondary pump loops.

The interface between the primary-transport distribution loop and the user-secondary loops utilizes a "BRDG-TNDR" (pronounced "Bridge Tender") control system that contain valves, flowmeters, temperature transmitters, differential pressure transmitters and electronic control panels. The function of the control system is to control the water temperature within the user-secondary loop and controls the flow and pressure relationships between the transport-primary loop and the user-secondary loops. The user-secondary hot water discharge temperature from the boiler is a constant 230°F and is reset by outside air temperature (OAT) to deliver approximately 200°F water at 0°F OAT, and approximately 70°F at 70°F OAT. During the cooling seasons when the Chiller compressors are energized the user-secondary chilled water supply temperature is 42°F± (although this varies and can approach chilled water return temperatures) and the return is controlled by the BRDG-TNDR to a constant 58°F±.

Each building contains it's own primary distribution pump set with the exception of the ATGS station; that is supplied from the Concourse C system.

When the refrigeration load decreases because of lower outside temperatures during the fall, winter and spring seasons, the cooling mode utilized is the "free-cooling" system using plate and frame heat exchangers. In the "free-cooling" mode, the chillers are by-passed and the condenser water is pumped from the 350,000 gallon sump through the plate and frame heat exchanger that cools the chilled water. A minimum of two cooling towers run during this time. The system change over to "free-cooling" mode is manual, due to the amount of the time it takes for the sump temperature to stabilize. The manual change-over to the "free-cooling" occurs when outdoor air temperatures do not rise above 60°F to 65°F and chilled water supply temperature can be

maintained below 52°F±. On a further increase in demand when the chilled water rises to 52°F±, the heat exchangers will be bypassed and additional cooling towers and chillers come on sequentially.

Tenant cooling or heating connections for air conditioning units shall be made to the supply and the return headers of the constant volume, Tenant user-secondary loop only. This loop is located on the apron level of the concourses.

202.3 EXISTING BASE BUILDING MECHANICAL DESIGN CAPABILITIES

The Tenant shall provide adequate cooling to provide comfort conditions with the following Base Building supply air. The Tenant shall not exceed the maximum amount of Lighting and Connected loads as defined in Section 3, Electrical Tenant Design Guidelines of Manual 2. If the allowable electrical load exceeds the following cooling capabilities, the Tenant shall provide additional cooling. This may be accomplished with Air Conditioning units utilizing the Tenant Loop Chilled Water or with a Make-up air unit with DX Cooling and air-Cooled Condenser. Heating may be supplied by the Hot Water Heating system, Gas Direct or Indirect heat or Electric heat. Verify the availability of existing system usage with the Project Manager.

202.4 EXISTING AIR HANDLING SYSTEMS

In the present designated Tenant areas of the Terminal building, Concourses and AOB the HVAC systems consist of variable air volume air handling units with heating and cooling capability. The VAV systems provide the flexibility required to maintain comfort during shifting cooling loads. The holdrooms in the Concourses are supplied by both VAV and constant volume air handling units. The exterior walls are supplied by heating-cooling VAV boxes that discharge out perimeter slot diffusers. The interior areas are supplied by constant speed fans.

The air handling units in the Concourses and Terminal are located on the fourth levels. The air handling units supplying the AOB are located on the roof. In the North Terminal the air handling units are located in the third level mechanical equipment rooms. First and second levels of the terminal have hot water only. The third level has constant volume air and access to both hot and chilled water. Verify the locations and available quantities for Tenant usage with the Project Manager.

The Concourse basement levels have limited amount of Central Plant hot water available for Tenant development. Most heating will have to be provided by electrical heat or gas fired equipment. Presently the basements have four (4) air changes per hour of tempered air. The systems also serve as smoke exhaust. This smoke and ventilation air is not available to the Tenant for comfort heating or cooling.

The air handling units are dedicated to distinct zones with overlapping airflows via a common return/relief fan system. The perimeter zones are VAV and Fan Powered Units with hot water heating at the terminal unit. The interior concourse holdrooms and subcore areas are cooling only VAV units. The central circulation zone is served by a constant volume system. The VAV perimeter air handling unit discharge temperature will be reset based on the "worst space load." All VAV heat terminals have double ended control to increase air temperature and volume in unison.

The air handling units were sized based on normal heating and cooling loads for Concourse mezzanine level Tenant areas and Terminal fourth, fifth and sixth levels. The airflows are governed by the sensible cooling and winter heating load. There is no provision for latent loads. Air supply was based on the following:

<u>Space</u>	<u>Min Occupancy</u>
Bars	7 SF per person
Concession Areas	30 SF per person
Dining Rooms	15 SF per person
Holdrooms	100 SF per person
Offices	100 SF per person

Because of the large glassed area curtain wall configuration of the South perimeter zones of the Concourse and Terminal, large airflows will be required by the South perimeter zone. To minimize the size of the South perimeter air handling units, a portion of the load must be shared by the VAV air handling units serving the interior zones. Each Tenant shall be responsible for HVAC design of his own space. VAV terminal air units shall be furnished and installed by the Tenant complete with VAV control devices and thermostat.

Air handling unit airside economizer controls utilize free cooling when possible during mild weather. Outside and return air dampers modulate to maintain $55^{\circ}\pm$ mixed air temperature. At the minimum mixed air temperature of $45^{\circ}\text{F}\pm$ or on a temperature rise over $75^{\circ}\text{F}\pm$, the outside air damper goes to minimum position. Space temperature modulates hot and chilled water coil valves.

Variable volume control is monitored from reliable static pressure control sensors located approximately 2/3 of the total duct length downstream of the air unit supply fan.

The control logic permits reduction in outside air ventilation requirements at night and during any extended off-peak periods that can be determined. The specified ventilation rate is the minimum condition required at peak occupancy. Control elements for air handling unit operation also include high discharge fan static, low pressure return air fan static, smoke detectors and multiple function freezestats.

Return air fan tracks the supply air fan to return 80-90% adjustable of the total related air handling units total supply to ensure positive space temperature.

202.5 EXISTING HVAC AIR DISTRIBUTION

The existing perimeter supply air system in the Terminal buildings, AOB and Concourses consists of an in-place heating-cooling VAV terminal air units complete with supply ducts and slot diffusers. The amount of perimeter air per lineal foot of outside wall varies with the location.

The interior supply air system consists of a SMACNA Class 4" w.g. primary duct that is supplied from the existing building supply system. The duct is routed in the ceiling of the Tenant space.

202.6 EXISTING BASE BUILDING HVAC CONTROL SYSTEMS

The HVAC host control system consists of a network of fully independent direct digital control (DDC) controllers that are interconnected via a multiplexed digital data trunk. Data available to any one direct digital controller is available to all DDC controllers. Each macro controller may supervise a sub-network of micro level DDC controllers. Sensor input devices and output devices shall be connected to either the macro or micro level DDC controllers. Each room with macro controller(s) have a local operator interface using an English language format. The control system interfaces over a phone modem with a subsystem operator interface computer in the Command Center. Each macro in the system is connected together by a Local Area Network (LAN) for peer-to-peer communication, multiple user programming and data gathering.

Existing building control system manufacturers:

- A. AOB: Honeywell
- B. Terminal: Honeywell
- C. Concourse A: Honeywell
- D. Concourse B: Kreuter Controls
- E. Concourse C: Honeywell

Fire and security automation system is an independent and separate system from the HVAC automation system.

202.7 EXISTING BASE BUILDING COMPRESSED AIR SYSTEMS

Compressed air is generated from a centralized compressed air facility with oil-free reciprocating or screw type compressors. Because of the critical nature of this system, there is one operational system with at least one stand-by system under all circumstances. This means that if one system is down for maintenance, there will be one system in operation and one additional system as a stand-by for a minimum of three systems.

The main distribution system air pressure is 80 to 100 psig with pressure reducing stations to reduce the pressure to the respective usable levels for temperature control systems. The main control air is dried with externally heated, regenerative air dryers to a -40°F dewpoint to prevent air lines from freezing ambient air temperatures. The dryers have adequate filters located both before and after the dryer. The dryers are interlocked to operate with their respective air compressor.

202.8 EXISTING PLUMBING SYSTEMS

Plumbing systems consist of sanitary soil, waste and vent, interior roof drainage, cold domestic water distribution, and hot water generation and distribution for the public toilet areas. Each Tenant shall be responsible to design furnish and install the required plumbing for the Tenant space.

In the Concourses, domestic cold water system basically consists of three major incoming services. One service enters the building in a Subcore pump room on the west half of the concourses. A second service enters a Subcore pump room in the West half of the Concourses. Each of these services split into an un-metered main to serve the public toilet room areas, with a second main arranged in a header in the pump rooms for tenant meters and extensions.

In the Terminal the domestic water main penetrates the North exterior wall underground above the third level in the northeast area and is routed directly West to the Domestic Water Booster Pump Room. Electric water heaters will be provided at the Public Toilet Room areas to serve toilet room lavatories and janitor closet mop service basin requirements. Each Tenant shall design furnish and install an adequate electrical hot water heater.

SECTION 203 - DESIGN CRITERIA

203.1 TENANT DESIGN PARAMETERS

The Tenant shall provide adequate cooling to provide comfort conditions. Tenant shall not exceed the maximum amount of Lighting and Connected loads as defined in Section 3, Electrical Tenant Design Guidelines of Manual 2. If the allowable electrical load exceeds the following cooling capabilities, the Tenant shall provide additional cooling.

The base building air handling system has been designed to accommodate the following loads for Restaurant, Food Courts, Office and Concession Spaces:

- A. Basic Office, Retail, Airline Tenant: Exterior Load + 1.00 CFM/SF
- B. Restaurant Tenant: Exterior + 1.25 CFM/SF for seating area. Kitchen to be conditioned with tenant supplied mechanical make-up air system.
- C. Bar Tenant: Exterior load + 1.25 CFM/SF
- D. Food Court Tenant: Exterior load + 1.25 CFM/SF for seating areas. Source of make-up air will be by each tenant and coordinated between DIA and each tenant.
- E. Concourse B Regional Jet Facility: No Tenant HVAC (hydronic on airside) accommodations have been made. Tenant shall provide a complete stand-alone HVAC system.

The Tenant shall provide a complete HVAC system to meet loads that exceed the requirements listed above. The Tenant shall verify the heating and cooling loads from the perimeter, adjoining structures and adjacent spaces affecting the Tenant area. All Tenant areas in the Terminal are in the interior spaces and are unaffected by the perimeter heating /cooling loads.

203.2 OUTSIDE AIR DESIGN PARAMETERS

The base building supply air systems shall be considered as interruptible service. Maintenance and unforeseen breakdown may cause temporary shutdown of systems. The outdoor design conditions are as follows:

- A. Summer:
 - 1. 92°F OB/59°F WB (coincident)
 - 2. 96°F OB 63°F WB (air cooled condensing temperature only)
- B. Winter: -5°F

Outdoor design conditions used for system designs were based on the recommended conditions list for Denver in the 1987 ASHRAE fundamental handbook at the 2½ percent summer condition and the 97½ percent winter condition. The design wetbulb condition was based on the 2½ percent mean coincident wetbulb condition. All new designs shall be based on the requirements of the International Energy Conservation Code and not exceed the values listed above unless required by code.

203.3 SPACE TEMPERATURE PARAMETERS

The Tenant and existing base building space design temperatures are the following:

- A. Concourse and AOB:
 - 1. Summer: 74°F (50% RH Max) no humidity control
 - 2. Winter: 72°F (no humidity control)
- B. Terminal:
 - 1. Summer: 78°F (50% RH Max) no humidity control
 - 2. Winter: 72°F (no humidity control)

203.4 ALTITUDE CORRECTION DESIGN PARAMETERS

The design of all air systems, gas-fired equipment and other affected mechanical equipment shall incorporate an adjustment for the altitude at DIA of 5,400 feet above sea level. The following

parameters for altitude conditions are:

- A. 1. Relative density correction factor = 0.819
- B. 2. Air density = 0.614 lbs/cu.ft
- C. 3. CFM Transfer Factor = 0.884

203.5 OVERALL COEFFICIENT OF HEAT TRANSFER ("U") & SHADE COEFFICIENTS

Concourse cooling and heating loads were based on the following "U"-values and shading coefficients:

- A. Wall: 0.10 BTUH/sq ft ° F
- B. Roof: 0.05 BTUH/sq ft ° F
- C. Glass: 0.35 BTUH/sq ft ° F, SC = 0.35

Each Tenant shall field verify existing site conditions to determine the "U" Factors and Shade Coefficients of the existing structure.

203.6 VENTILATION REQUIREMENTS

The existing system ventilation was designed in accordance with American Society of Heating, Refrigeration and Air Conditioning Engineers Standard (ASHRAE) 62-1989, "Ventilation for Acceptable Indoor Air Quality". All new design for proper ventilation shall be in accordance with the recommendations of the American Society of Heating, Refrigeration and Air Conditioning Engineers Standard ASHRAE 62-2004 and IMC, "Ventilation for Acceptable Indoor Air Quality" or requirements of local building code, whichever is more stringent. Minimum ventilation rates:

<u>Space</u>	<u>Min Ventilation</u>	<u>Min Occupancy</u>
Smoking Areas:	60 CFM per person	70 people per 1,000 SF
Dining Areas:	20 CFM per person	
Cocktail Lounges:	25 CFM per person	
Kitchen Areas:	2.5 CFM per SF	
All other Areas:	10 CFM per person	

The Engineer shall use the values above or the requirements of the local building code, whichever is more stringent. Ventilation requirements that exceed original building design are to be provided by the Tenant HVAC systems.

All kitchen areas shall have a separate exhaust fan.

Submit ventilation calculations required by ASHRAE 62-2004 to the DIA Mechanical Engineer prior to completion of project design.

203.7 AIR DISTRIBUTION SYSTEM

Ductwork shall be either rectangular or round (spiral) as appropriate for the specific application. All ductwork shall be constructed and installed in accordance with SMACNA standards and local building codes. All ductwork shall be constructed of sheet metal per DIA Standard Specifications. Ductwork air velocities shall not exceed the following limits:

- A. Mains (equipment rooms and non-occupied spaces) - 2400 fpm
- B. Mains (occupied spaces) - 2000 fpm

- C. Branch (or mains with diffuser connection) - 1600 fpm
- D. Branch with diffusers - 1200 fpm

For sizing by constant friction method, use the following:

- A. 1" wg class $\leq \pm 1"$: 0.05" to 0.08" wg per 100 ft equiv duct.
- B. 2" wg class $\leq \pm 2"$: 0.10" to 0.20" wg per 100 ft equiv duct.
- C. 3" wg and greater: 0.30" to 0.50" wg per 100 ft equiv duct.

203.8 NATURAL GAS REQUIREMENTS

Gas piping shall be sized per the requirements of the International Fuel Gas Code, City and County of Denver Amendments to the code and local Gas Utility. Additional criteria:

- A. Gas specific gravity: 0.65
- B. Gas thermal capacity: 834 BTU per 1000 cubic feet

Natural gas service for Concourse Tenants will be connected from metered area designated by DIA. Tenant shall coordinate gas and meter requirements with the local Gas Utility. All gas requirements (demand and pressure) shall be shown on the drawings.

203.9 HYDRONIC REQUIREMENTS

Chilled or Heating Water shall be sized for a maximum of 10 feet pressure drop per 100 feet of equivalent pipe for any run, but no more than an average of 4 feet pressure drop per 100 feet of equivalent pipe for the entire connected system. Connections shall only be made to the Base building Tenant hydronic loops, no exceptions will be made. Tenant Engineer is responsible for verifying the existing Tenant loop pumps have adequate capacity to serve the Tenant space. Existing pump data is available from the DIA Project Manager upon request. Circuit setters or balancing valves shall not be used for equipment isolation.

- A. Hydronic design temperatures:
 - 1. Chilled Water Supply Temperature: 42°F (note: temperature not constant)
 - 2. Chilled Water Return Temperature: 58°F
 - 3. Heating Water Supply Temperature: 190°F
 - 4. Heating Water Return Temperature: 150°F

No more than 20 GPM of chilled or heating water shall be used for any Tenant.

203.10 NOISE CRITERIA

The mechanical (HVAC) system shall be designed to minimize noise in the occupied space. The system and components shall be designed so as not to transmit or generate sound above a specified noise level in the space. Sound attenuators, duct liner, lower duct velocities and appropriate ductwork fittings and components shall be utilized as required to attain acceptable sound levels. Vibration isolation shall also be evaluated and utilized.

Sound tests shall be conducted in accordance with accepted procedural standards in and around all major sound producing equipment to either confirm adequate attenuation or to identify problem areas requiring additional modifications as required by the Project Manager.

Maximum noise levels in the occupied space produced by HVAC equipment shall be in

accordance with the following NC (noise criteria) curves.

- | | | |
|----|------------------------|-------|
| A. | Offices | NC-35 |
| B. | Terminal & Concourse | NC-40 |
| C. | Maintenance Facilities | NC-45 |

Equipment and ductwork noise levels to permit attaining sound pressure levels in all 8 octave bands in Tenant occupied spaces shall conform to noise criteria NC-35 curves. Mechanical equipment rooms shall conform to NC-50-60 curves. Motor drives for pumps or any equipment shall operate with noise levels not exceeding OSHA 8 hour 90dBA Time Weighted Average (TWA). Noise levels shall be determined in accordance with IEEE Standard #85 Test "procedure for Air-Borne Noise Measurements on Rotating Electric Equipment.

SECTION 204 - EQUIPMENT

204.1 VAV TERMINAL AIR UNITS

The VAV boxes and controls shall be furnished and installed by the Tenant. All cooling only, variable air volume (VAV) units shall be pressure independent with normally closed, pneumatic damper actuators that have a minimum air flow rate adjustment to zero (full closed). All combination heating/cooling VAV units shall be pressure independent with normally open, pneumatic damper actuators. Each damper actuator shall have adjustment capability thru the full range of damper position of full closed to full open. Heating coils shall be sized for heating maximum air flow rate of each unit. All heating coil control valves shall fail open.

All Concourse Center Core and Terminal VAV boxes in Concourse B that connect to a building air handling unit shall have a monitor module that allows for override control by the building air handling unit for smoke control. Monitor module shall be purchased and installed by the Tenant and approved by the DIA Project Manager.

Designer shall ensure all components of VAV terminals are completely accessible for maintenance and no additional HVAV or Tenant equipment is required to be removed from operation in order to complete maintenance activities. Control modules shall have a minimum twenty-four (24) inches of clear space to allow for maintenance activities.

204.2 DUCTWORK

Ductwork upstream of the VAV or fan-powered terminal air unit shall be based on the system's maximum fan discharge pressure. In lieu of segmenting ductwork into lengths downstream of the base building system fan, the VAV upstream ductwork shall be SMACNA Class 4.0" w.g. minimum. The ductwork downstream of the VAV or fan-powered terminal air unit shall be 2" w.g. class.

Ductwork shall be preassembled in shop to greatest extent possible, so as to minimize field assembly of systems; disassembling systems only to extent necessary for shipping and handling, and match-marking sections for reassembly and coordinated installation. Accessories are to be installed during fabrication to the greatest extent possible.

Ductwork shall be shop fabricated of gages and reinforcement complying with the SMACNA "HVAC Duct Construction Standards", and complying with the latest version of ASHRAE Handbook, Equipment Volume, Chapter "Duct Construction" and the latest version of the Mechanical Code.

Duct fittings shall match adjoining ducts, and comply with duct requirements as applicable to fittings. Elbows shall be fabricated with center-line radius equal to associated duct width; and fabricate to include turning vanes in elbows where shorter radius is necessary.

Exposed ductwork in finished areas shall be one gage classification heavier than required by SMACNA "HVAC Duct Construction Standards" to hinder ding marks and dents.

204.3 DUCTWORK INSTALLATION

Installation shall be in accordance with Section III of SMACNA's "HVAC Duct Construction Standards, Metal and Flexible." Ductwork runs are to be located, except as otherwise necessary, vertically and horizontally, avoiding diagonal runs wherever possible. Ducts are to be routed close to walls, overhead construction, columns and other structural and permanent enclosure elements of building. Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for application of insulation. Horizontal runs are not to be encased in solid partitions.

Where ducts pass through interior partitions and exterior walls, and are exposed to view, the space between construction opening and duct or duct insulation is to be concealed with sheet metal flanges of same gage as duct. Where ducts pass through fire-rated floors, walls, or partitions, firestopping is required between duct and substrate.

All duct dimensions shown on the plans shall be inside clear duct or inside liner dimensions.

204.4 DUCTWORK FIELD QUALITY CONTROL

Ductwork of pressure class 3" w.c. and greater shall be tested in accordance with recognized SMACNA HVAC Air Duct Leakage Test Manual after completion. There shall be not objectionable discharge noise. Testing if required shall not exceed 1.25 times the operating pressure. Verify duct testing requirements with the Project Manager. Ducts shall be air-tight.

204.5 MECHANICAL INSULATION

Equipment, ductwork and piping shall be insulated in accordance with the manufacturer's instructions with the appropriate material, insulation density, thickness duct liner and mechanical identification. Clean all surfaces appropriately for insulation adhesives. Provide insulation with vapor barriers as required. Repair or replace damaged insulation as directed by the Project Manager.

Ductwork insulation or liner shall be installed on outside air intake duct, air plenums, supply air discharge duct with vapor barrier from air handling units and return air intake duct connecting to return air fans. The distance of lined duct from the unit shall be determined for adequate sound attenuation. All ductliner shall be securely fastened to prevent stripping or peeling because of high air velocities. Duct liner shall be laminated to internal surfaces of duct in accordance with instructions by manufacturers of lining and adhesive, and fastened with mechanical fasteners. Duct liner shall be installed in accordance with SMACNA HVAC Duct Construction Standards. All duct liner shall be securely fastened to prevent stripping or peeling because of high air velocities.

Install equipment insulation in accordance with the equipment manufacturer's instructions. Do not insulate over factory installed insulation or equipment nameplate or ASME stamps.

Insulate the following piping: Heating water, chilled water domestic cold water, domestic hot and recirculated hot water, manufacturer recommended exposed refrigerant piping, roof and overflow drains, engine exhausts and fire pump coolant piping per the insulation manufacturer's recommendations. Allow clearance for installation.

204.6 FILTRATION

Outside air shall be filtered with dry-type filter media with an Atmospheric Dust Spot Efficiency (ASHRAE) of at least 60 percent. Intake locations near vehicle traffic areas shall have an electrostatic air cleaner or minimum 12 inch deep filters with a combination of carbon and potassium permanganate, downstream of the dry-type filters, or capacity to include this filtration in the future.

204.7 PLUMBING REQUIREMENTS

Tenant plumbing fixtures and piping systems including all rough-in and final connections shall be furnished and installed by the Tenant. Plumbing fixtures and accessories shall be of commercial quality and shall be water conserving. All hot water, cold water, vent, waste and grease waste piping shall be installed in accordance to the IPC and local plumbing codes. No plastic piping is permitted above the Tenants ceiling, in a return air plenum or below floor.

Water wash hoods shall have service for 140°F minimum and 160°F maximum hot water for cleaning and cold water make-up for operation.

Food service Tenants shall connect all grease waste to designated grease waste lines. Cleanouts for sanitary, vent and grease piping shall be located in the Tenant's space. No line cleanouts in an adjacent space are allowed. Provide grease trap interceptors for kitchen areas. Grease piping shall be sized, sloped and of the same material as sanitary waste. Either cast iron hubless or hub and spigot will be allowed per DIA Standard Specifications.

Provide gas-fired hot water heating system for kitchen requirements in the concourses. Electric water heaters may be used on the concourses with written approval of the DIA Mechanical Engineer and verification there is adequate electrical service. All water heaters in the Terminal Area shall be electric.

Domestic water shall be sized by fixture units and the curve for flush valves per the Denver Building Department. Domestic cold water system will not need to be metered if tenant has only one hand sink. Backflow prevention is required on a single hand sink. Hot and cold water piping shall be insulated. The Tenant shall provide an additional domestic cold water branch from the main located in the pump room. The Tenant shall furnish and install a water meter at the header. All water heaters shall have an expansion tank, regardless of the tank size.

No assumptions shall be made on plumbing system capacities. All connections to existing plumbing systems shall have capacity calculations proving capacity. The design consultant shall submit all calculations directly to the DIA Mechanical Engineer in PDF format.

204.8 CLEARANCE FROM ELECTRICAL EQUIPMENT

Electrical panels, controllers, disconnects, and similar equipment which can be opened to expose energized parts must, without exception, have working clearances as specified in Article 110-16 of the National Electrical Code. All mechanical piping, ductwork, equipment, and auxiliary systems shall be configured, routed and located so as to maintain the required clearances. Piping and ductwork is prohibited in electrical rooms and elevator equipment rooms. Ductwork may be installed only if it serves that space. All clearances and equipment removal areas shall be dimensioned on the drawings.

204.9 EQUIPMENT CONNECTIONS

Flexible connections are required for each ductwork connection to equipment mounted on vibration isolators, and/or equipment containing rotating machinery. Access doors are required.

204.10 CONTROL SYSTEMS

A. General

1. Control systems may be pneumatic, electric or electronic. There is 20± psi pneumatic control loop located in the Tenant ceiling return air space in the Concourses and within 100± feet from the Tenant's space in the Terminal. Work may include connection to local field panels to the Energy Management Control System (EMCS) located at the Central Plant. These systems are also capable of stand-alone operation. The Tenant shall furnish and install the space sensors and all other controls required for the operation of Tenant equipment.
2. New control systems or control system components that are required to tie into the base building control system shall be fully compatible with the base building control system without modifications to the base building control front end.

B. Controls

1. A complete system of automatic controls shall be provided to maintain space conditions within allowable limits. When heating and cooling is incorporated in one system for personal comfort, the automatic temperature controls shall not be capable of simultaneous heating and cooling and shall provide a "dead band". Automatic temperature control devices for personnel comfort shall have a heating control range between 65° F and 74° and a cooling control range between 72° F and 85° F. The system shall consist of all necessary control devices, control valves, control dampers, damper motors, pneumatic and electric switches, relays, gauges, panel boards, tubing and fittings, including all necessary accessories required for a complete and operative control system. All control wiring and control system electric power is to be furnished to provide a complete of environmental control and central panel functions.
2. Controls system shall be electronic, digital systems controlling all HVAC equipment utilizing local microprocessor field panels located in the applicable adjacent equipment rooms. The field panels shall be capable of interfacing with central (EMCS) equipment provided by a different vendor. Pneumatic operators shall be used for valve and damper actuators.

C. Control C Control System

1. **The Central Core of Concourse C has the new Honeywell EBI control system. All tenants on the concourse level in this area shall connect to this new control system.**
 - a. Tenant shall provide VAV box controller.
 - b. Tenant shall provide new Control Module for all equipment needed to be overridden by smoke control system (typically VAV's or other HVAC equipment that affects pressurization of space – kitchen equipment excluded). New control module shall be compatible with LonMark protocol (Honeywell XL-10 or equivalent). Control module shall be located in the ceiling outside of the tenants leased space.
 - c. Tenant shall connect new LonMark control module to DIA iLon Server

(Honeywell Q7751G LonWorks IP Server) with assistance from DIA. One iLon is located in each quadrant of the central core in the ceiling space of the quadrant. Final terminations to the iLon shall be with DIA direct supervision.

- d. Tenant will provide all conduits and wiring from units (IE: VAV boxes) to the iLon server.
- e. Tenant shall furnish DIA with control module XFI file for integration into DIA BAS prior to start of construction.
- f. Programming of BAS and BAS graphics shall be provided by DIA.
- g. Star taps of control wiring is not allowed.

204.11 DAMPERS

All manual control balancing dampers shall be the parallel-blade type. All operator controlled modulating dampers shall be opposed-blade type. Outside air intake dampers shall have air-tight seals at both the edges and ends of the blades. The seals shall be of a material that will not disintegrate with exposure to jet exhaust fumes.

All fire, smoke or combination fire/smoke dampers shall be UL listed, F.M. approved and conform to the standards and requirements of the City and County of Denver Building Code. Fire dampers shall be located at all fire zone penetrations and will have access doors provided for service and maintenance. Provide access doors of adequate size at all fire damper locations for the purpose of inspection as well as for replacing fusible links. Smoke/fire dampers or space detectors shall be connected to the base building fire alarm system as directed by the Project Manager.

204.12 DIFFUSERS

Various styles and types of diffusers are to be considered based on architectural requests. All diffusers selected shall consider quality, durability, capacity, aesthetics, throw and noise level. Coordinate with the architect all diffuser types and locations. All interior ceiling diffusers shall be 24"x 24" perforated face type with directional throw adjustment and opposed blade dampers.

Eggcrate grilles shall be used in return air plenums that are used for smoke control. Perforated face grilles shall not be used.

The neck size shall be determined from the design airflow rate. Linear slot diffusers shall be individual, four (4) foot maximum sections with individual supply boots. Sidewall and perimeter diffusers shall be selected based on quality, durability, aesthetics, capacity, throw and noise level. Coordinate all diffuser locations and types with the space architecture.

204.13 EXHAUST SYSTEMS

Due to the nature of the roof structure in the Terminal, Tenants in the Terminal who require some sort of exhaust system will need to conform to very stringent design criteria.

Requirements for these exhaust systems are available upon request from the Airport Engineering Department.

Tenants in the Concourses who also need to install some sort of exhaust system within their areas are likewise cautioned that they need to comply with very stringent requirements in regard to the installation of this system and are advised to contact the Airport Engineering Department for further information regarding specific design parameters.

204.14 NEW TENANT HVAC SYSTEMS

Most Curtain Walls areas on the Concourses and the Terminals are served by existing base building heating-cooling VAV and/or Fan-powered terminal air conditioning units. The exterior space is defined as that space from the exterior wall to 8 feet in from the exterior wall.

The Tenant shall provide Terminal air units and appropriate ductwork if required for the perimeter areas. The system shall consist of heating-cooling VAV boxes or Fan-powered units as required. The Tenant shall connect to the existing supply ductwork and connect to four (4) foot ceiling slot type diffusers with adjustable directional vanes. Locate the diffusers in sill or ceiling nearest the exterior wall where height is not over 9 feet 6 inches above finished floor. There shall be a sheet metal boot above the slot diffuser that has a side inlet for round duct connection and is insulated internally with duct liner.

The use of continuous linear-slot diffusers or light-troffer diffusers is not allowed. Utilization of fan powered boxes is recommended if the Tenant occupancy is an 8 to 12 hours. The boxes would allow the primary air to be shut-off with no occupancy load while maintaining air circulation. Tenant occupancies more than 12 hours, shall use cooling-heating VAV terminal air units.

Interior spaces are designed for VAV terminal air units with 55°F± cooling-only air available from the existing primary duct supplied from the existing system. The Tenant shall connect to the primary duct to supply perimeter or interior areas and rout to the VAV terminal units.

204.15 NEW TENANT AIR HANDLING UNITS

Make-up air handling units are required for kitchens with exhaust hoods, smoking-allowed dining areas and smoking lounges. Make-up air units shall be constant volume with gas or electrical heating sections and DX cooling systems complete with air-cooled condensers. Air handling units shall be located in Mechanical equipment rooms on the Concourse and on the roof of the Terminal Building. In outlying Support Buildings, gas-fired equipment shall be used wherever there is a gas main reasonably close. Gas-infra red radiant heat, direct or indirect gas fired make-up units or unit heaters shall be installed.

Areas requiring year-round cooling requirements (such as computer rooms) shall have individual refrigerant systems. They shall be complete with roof mounted or horizontal cabinet mounted condensing units if access to outside air for cooling through an economizer control is not available. Apron level stand mounted condensing units should be avoided due to increased potential of damage by apron service equipment.

Cooling type Heat Pumps may be used in some areas. Base building Tenant chilled water may not be used for Heat Pump condenser water unless control mechanisms are in place to limit condenser water return temperature to 70°F maximum at all times. The amount of chilled water may not exceed 20 GPM to any single tenant space unless approved by the DIA Project Manager and DIA Mechanical Engineer. Refer to DSM 4 "Hydronic Requirements" for additional design requirements.

Areas having special humidification requirements such as computer rooms, radar equipment rooms, radio equipment rooms, shall utilize electric humidifier units located in the zone ductwork or in unitary or split air conditioning units. Humidification from the main air handling system is not provided.

Evaporative type air handling units will be considered for isolated buildings such as maintenance, shops, hanger building offices. In these instances, only indirect evaporative cooling with back-up

refrigeration will be considered. Direct evaporative cooled systems will be allowed for kitchen systems if all other refrigeration cooling systems are deemed not practical by the DIA Project Manager.

All roof-mounted equipment surfaces shall be a dull, non-reflective white or gray finish to prevent sun reflection obstructing control tower operations. These shall be in accordance with FAA standards. New roof mounted equipment shall maintain clear space for required service areas and new reinforced roof walkway pads shall be installed from the nearest roof access to the equipment. Walkways shall extend around entire equipment.

204.16 FOOD AND BEVERAGE TENANT EQUIPMENT

All kitchens shall be air conditioned. The exhaust requirements will be determined by the cooking exhaust hoods installed within the facility. The kitchen exhaust system shall be designed in accordance with NFPA 96, "Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment." Re-circulating hoods are not allowed.

Tenant shall furnish and install, if applicable, a complete kitchen exhaust system and mechanical make-up air system. In the Concourses and the Terminal, each Food Court Tenant shall provide its own mechanical make-up air system. Kitchen grease exhaust hoods shall be UL listed, continuous water wash type filter with hot water wash cycle. UV systems may be used in type 1 hoods with the exceptions of heavy duty and extra heavy duty cooking appliances. In heavy duty and extra heavy duty applications, UV hoods may be used in combination with another approved grease removed system.

Exhaust and make-up air quantities shall be determined per food service Tenant. The system shall be complete with hood, water wash scrubber with high efficiency smoke filters, exhaust fan and control panel. Exhaust fans shall be utility set type and arranged in up blast configuration. In the Terminal Building the kitchen exhaust fans will be roof mounted. Install a kitchen exhaust system for the Concourse areas with sidewall discharge.

The exhaust air from kitchen hoods shall be free from grease, vapor and smoke. Installation of water wash scrubber with filters shall be the preferred method. In the Terminal Building, the air scrubber shall be mounted on the roof. In the Concourses, the Tenant shall provide space for the exhaust fan and air scrubber within the tenant return air plenum space.

Heat recovery from kitchen hood exhaust should be considered in the final design if grease build up or collection can be avoided. In addition, make-up air systems for large kitchens must be evaluated. Make-up air should be heated to 70°F, or cooled via evaporative cooling equipment, and supplied at the kitchen hoods. Packaged, factory designed and NFPA approved kitchen exhaust hoods with make-up air systems are acceptable.

204.17 SMOKING LOUNGES (GENERAL)

All Tenants proposing to construct designated smoking areas within their leased space shall comply with the criteria listed below. The design criteria herein includes Smoking Lounges and non-smoking dining areas, bars and food preparation areas. Smoking Booths are smoking-only areas without dining areas or food preparation that requires a dedicated exhaust fan system and adequate outside or transfer air.

Smoking Lounges shall be designed with the primary objective to prevent migration of tobacco smoke to adjacent spaces. This is accomplished by installing a dedicated independent exhaust

and make-up air system. Provide an outside air makeup unit for supply air. Provide indirect gas-fired heating section and DX cooling coils complete with air cooled condenser.

An electrical heating unit may be substituted for a gas heating section.

The exhaust system shall provide a negative pressure within the space. This shall be accomplished by a dedicated exhaust fan ducted from the center of the smoking lounge to maintaining a constant negative pressure in the smoking lounge. The area must be enclosed and independently ventilated. There may be a certain amount of openings in the space but shall be kept to a minimum. A tobacco smoke evacuation test shall be conducted by the Tenant. The test shall be witnessed and approved in writing by the DBD, Denver Health & Hospitals and the Project Manager. The smoke The Smoking Lounge cannot exceed one-half of the Tenant area. The exception would be a Smoking Booth dedicated to smoking only occupancy.

The design of smoking lounges shall be in accordance with or exceed the recommendations pertaining to energy efficient design that are set forth in the 2004 ASHRAE Standard 90.1 - "Energy efficient design of new buildings except low-rise residential building" and the City and County of Denver Building Code. The ventilation requirements for occupied spaces are based on the American Society of Heating, Refrigeration and Air Conditioning Engineers Standard ASHRAE 62-2004, "Ventilation For Acceptable Indoor Air Quality" that apply to all spaces that are smoking and non-smoking.

The amount of ventilation air shall be a maximum of 60 CFM per person depending on the occupancy. If there is smoking only as in a smoking booth, the ventilation rate shall be 35 CFM per person. Smoking lounges are based on an occupancy load of 70 people per 1000 square feet. In some Instances, Supply Air and Transfer Air can be utilized to reduce the amount of outside air required. Transfer air may not be taken from another smoke control zone. The maximum total of supply and transfer air to the space shall not exceed the exhaust air requirement or be less than 90% of the exhaust quantity.

These requirements are the same for dining areas designated for smoking. Non-smoking dining areas shall provide 20 CFM per person or a minimum 1.5 CFM per square foot. Ventilation for kitchen areas shall be 2.5 CFM per square foot. Kitchen areas shall have a separate exhaust fan and 100% mechanical make-up.

204.18 ELECTRICAL CLOSETS/COMMUNICATIONS ROOMS/FIRE CONTROL ROOMS

Ductwork shall not be routed through transformer vaults and their electrical equipment spaces and enclosures, except for ducts specifically serving those areas. If a tenant's leased area is on a level directly above an electrical closet and if that tenant requires water lines, those water lines shall be installed in such a manner to avoid being routed directly above the electrical closets. Lines above Communications and Fire Control Rooms shall be sleeved to protect equipment.

204.19 MAINTAINABILITY

Mechanical equipment and layout shall be selected to maximize equipment performance; and minimize equipment repair and maintenance. Equipment selection shall also consider durability, reliability, maintainability and serviceability. Equipment arrangement and layout shall allow for safe and efficient accessibility for equipment removal, replacement, repair and maintenance.

204.20 CLEAN-UP

After all construction has been completed, it shall be the responsibility of the mechanical contractor to thoroughly clean all equipment, piping, and ductwork surfaces in all equipment rooms and walk-

in tunnels as applicable. The cleaning process shall be such that any surrounding surfaces should not have to be cleaned.

204.21 ADJUSTING AND CLEANING

Ductwork shall be cleaned internally, unit by unit as it is installed, of dust and debris; external surfaces cleaned of foreign substances which might cause corrosive deterioration of metal or, where ductwork is to be painted, might interfere with painting or cause paint deterioration.

Before putting into service, it is necessary to strip protective paper from stainless ductwork surfaces and repair finish wherever it has been damaged.

Temporary Closure: At ends of ducts which are not connected to equipment or air distribution devices at the time of ductwork installation, temporary closure of polyethylene film, or other covering is required which will prevent entrance of dust and debris until connections are to be completed.

SECTION 205 - LIFE SAFETY SYSTEMS

205.1 FIRE PROTECTION SYSTEMS

Each tenant shall be responsible for the design of his individual space in relocating sprinkler heads. Generally, the AOB, Terminal baggage areas and Concourses meet the classification of Ordinary Hazard Group II. In the Terminal baggage areas on level three (3), the developed Tenant areas shall be rated B2 classified areas and B1 in the baggage areas requiring a one (1) hour separating wall classification. In the baggage areas and the Tenant areas in the Terminal are to be designed for Ordinary Hazard Group II.

With the indication from the Fire Department that the system design should be based on one fire incident, and that an elevated pressure water supply will not be available, the current design indicates a fire pump for each concourse. The fire pump capacity is based on 1,500 GPM at 100 PSI head plus city water pressure of 60 PSI which is sufficient to serve the standpipes and fire sprinkler demand. Each Tenant shall be responsible for his own design for the individual space in relocating sprinkler heads and meeting the classification of Ordinary Hazard Group II, in all areas, no exceptions. Design and work shall comply with DIA specification sections 15310, 15330 and all other applicable sections. Work on all systems require DIA Shut Down Requests be completed and filed 5 days before work is to be done. Work on wet systems must be done during off hour periods, 10:00 p.m. to 6:00 a.m. Sunday night through Friday morning. No system may be shut down for periods longer than 10 hours. The Fire Sprinkler Contractor is responsible for the required fire watch and must remain on site for the entire period of time that the system is not in service. Failure to comply may be reason for immediate suspension of work privileges.

Kitchen ranges and hoods shall have a fire protection system installed. The system shall be dry chemical or water mist. Install gas services with mechanical gas line pneumatic piston-type air-cylinder shut-off valve.

The fire protection system shall be provided in accordance with the latest editions of NFPA Standards and the building code for the City and County of Denver. The following description of fire protection requirements is based on NFPA.

- A. Provide a wet-pipe sprinkler system for this area.

- B. Provide Class I standpipe system.
- C. All facilities having 1,500 SF or more shall be designed to have fire sprinklers.
- D. Provide an extinguisher at each station in the enclosed areas.
- E. Provide manual pull type fire alarm station at exits.
- F. All escalator and stair opening perimeters shall be protected by providing closely spaced sprinkler heads to provide a water curtain.

205.2 LIFE SAFETY FIRE AND SMOKE CONTROL SYSTEM

Smoke Control Systems are in place in all portions of the DIA Terminal Complex except for the DIA Parking Garages and the Concourse Apron Level non-public areas. In general refer to DIA Design Standards Manual 4, Chapter 10 for more detailed system summaries and requirements. The requirements of Manual 4 shall not be waived.

- A. General Design Requirements: Design shall be executed by a Colorado Licensed Mechanical Engineer. The Engineer shall have working knowledge and experience with smoke control concepts and the current codes and requirements of the City and County of Denver code agencies. Design shall comply with Denver Amendments to the International Codes and Current NFPA requirements. Specific design criteria for each space will be reviewed and established at the DIA Pre-Design Meeting.
 - 1. Smoke Control System Design includes coordination of proper placement of devices for initiation of the smoke control sequence by the Fire Alarm System. The devices include fire protection sprinklers, fire alarm detectors, draft stops, and ceiling grilles/openings.
 - 2. The designer shall assure that smoke control systems for adjacent tenant spaces are not negatively impacted by the design and construction of the tenant space smoke control system.
 - 3. **The designer shall assure that all control sequences and operation of new tenant HVAC equipment do not adversely impact the smoke control system.**
- B. Design Concept of Retail/Concession Areas of Concourses and Terminal: The following is a general description of the smoke control systems in place for specific areas. This information shall not be used as criteria for final smoke control design.
 - 1. Concourse Retail/Concession Areas:
 - a. Subcore smoke control: The retail tenant areas of the subcores are part of the main subcore smoke zone. Draft stops shall be provided at the opening of the retail space into the public area.
 - b. Central Core Smoke Control: Each of the (4) quadrants of retail concession space within the central core is a smoke control zone.
 - c. Exhaust: Exhaust is ducted from the roof fan to the tenant area. Within the tenant area, the return air plenum acts as the route for smoke evacuation. Therefore openings above the ceiling area required connecting all the tenant spaces. Openings shall be engineered by a Colorado Licensed Mechanical Engineer to assure adequate smoke removal of the tenant space and adjacent tenant spaces is in place at completion of the facility. Openings shall perform with a maximum of 400 fpm air flow. If no ceiling is planned in a tenant space, ducted return must

- be engineered connecting the adjacent tenant plenums as well as providing balanced exhaust for the tenant without ceiling systems.
- d. Pressurization: Pressurization is ducted to the ceiling plenum of each zone. Pressurization duct work within the ceiling plenum is required. Each of the 4 Zones are pressurized by 4th level “D” fans, one on the east side and one on the west side. The East “D” fan simultaneously pressurizes both zones on the east. The West “D” fan simultaneously pressurizes both zones on the west. Therefore in the event of an incident in either the east or the west sides of the center core retail areas, the adjacent zone will not be pressurized; the center core will be pressurized via the train station pressurization system and the adjacent hold room pressurization system.
2. Terminal Retail Concession Areas: Each area is a smoke zone.
 - a. Exhaust: Exhaust is ducted from the roof fan to the tenant area plenum. Within the tenant area, the return air plenum acts as the route for smoke evacuation. Therefore openings above the ceiling area required connecting all the tenant spaces. Openings shall be engineered by a Colorado Licensed Mechanical Engineer to assure adequate smoke removal of the tenant space and adjacent tenant spaces is in place at completion of the facility. Openings shall perform with a maximum of 400 fpm air flow. If no ceiling is planned in a tenant space, ducted return must be engineered connecting the adjacent tenant plenums as well as providing balanced exhaust for the tenant without ceiling systems.
 - b. Pressurization: Pressurization is ducted to the ceiling plenum of each zone. Pressurization duct work within the ceiling plenum is required.
 - C. Smoke Control System Construction and Installation: Installation of equipment and materials for smoke control shall comply with general Contract requirements and DIA Standards for each discipline.
 - D. Smoke Control System Testing: Smoke Control Testing shall be performed by the Contractor in compliance with Code Agency and DIA requirements. The Contractor shall acquire for smoke testing the services of a Colorado Licensed Mechanical Engineer independent of the designer of record for the system. Testing shall also comply with specifications Section 15951. Section 15951 shall be developed using the DIA Standard specification as a guideline.

DESIGN CHECKLIST

205.3 GENERAL

The following quality control checklists are provided to establish a minimum level of thoroughness for the development of a project specific document quality control checklist. The Consultant shall review this checklist and based upon the specifics of the project, modify this checklist to meet the specific need for document quality control for its design. The quality control checklist is to be submitted with each design development and construction document submittal as defined in the Design Standards Manual 1 – Standards and Criteria.

Check list Item	Yes	No	N/A
MECHANICAL			
1 Mechanical plans match architectural and reflected ceiling plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 HVAC ducts are commensurate with architectural space and not in conflict with conduit, piping, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Verify Mechanical equipment fits architectural space with room for access, safety, maintenance and all access doors and equipment removal areas are clearly identified..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Verify mechanical openings match architectural and structural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Verify mechanical motor sizes match electrical schedules.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Verify thermostat locations are not placed over dimmer controls or directly under diffusers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Verify building pressure will allow exterior doors to close.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Verify equipment schedules correspond to a manufacturer and Project Manual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Verify mechanical requirements to special equipment, i.e., kitchen, elevator, telephone, transformer, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Verify fire damper locations in ceiling and firewalls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Verify vibration, air and noise control for mechanical.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Verify sequence of operation has been listed for each mechanical system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Verify control sequence has been coordinated with building fire and smoke detection systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 Verify control system specified is compatible with existing building or campus control system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 Verify heat trace power is shown on electrical drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 Verify all materials and equipment have been specified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 Verify existing building systems and components have been adequately identified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Verify equipment and piping supports have been coordinated with Structural	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Verify fire walls are shown on Mechanical plans and are coordinated with the Architectural drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Verify all values are completed on air and water flow diagrams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Verify mechanical equipment identification has been coordinated with DIA staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Verify elevation of critical mechanical equipment is defined and coordinated with Architectural and Structural drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Verify weights of mechanical equipment have been coordinated with Structural drawings and adequate supports have been detailed completely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Verify roof mounted mechanical equipment has been coordinated with lightning protection design.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Verify roof mounted mechanical equipment has been coordinated with the roof plan and walkways to and around equipment have been shown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Verify roof mounted mechanical equipment has adequate service area between screen wall and equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Check list Item	Yes	No	N/A
PLUMBING			
1 Verify plumbing plans match architectural, mechanical and structural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Verify plumbing fixtures match plumbing schedules and architectural locations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Verify site piping limits interface with building piping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Verify roof drain locations with roof plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Verify subsurface drains located and detailed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Verify roof drain overflows are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Verify piping chase location matches architectural and structural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Verify all cold (chilled) and hot water piping is insulated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Verify piping is commensurate with architectural space and not in conflict with conduit, duct and structure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Verify sprinkler head locations with room and reflected ceiling plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Verify piping openings match architectural and structural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Verify plumbing equipment and piping requirements with structural.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Verify plumbing equipment schedules correspond to a manufacturer in specification.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 Verify floor drains match architectural and kitchen equipment plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 Verify site water and gas service requirements with supplying utility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 Verify floor openings, i.e., drains, water closets, etc. do not conflict with structural beams, joists or trusses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 Verify limits and confines where piping may be run.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Verify infra-red sensors on plumbing fixtures have power on electrical drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19 Verify traps have trap primers and a water source has been clearly detailed and sized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Verify fixture counts and/or flow rates are shown at piping tie-in locations on the plans AND isometrics.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Verify elevation of critical plumbing equipment is defined and coordinated with Architectural and Structural drawings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CHAPTER 3 ELECTRICAL

SECTION 301 - DRAWINGS / SUBMITTALS

Electrical drawings and submittals shall be clear descriptive drawings and specifications produced and detailed in a manner that meets or exceeds local professional standards of practice. The information contained shall include but not be limited to:

- A. Symbols, from DIA Standards
- B. Lighting
- C. Emergency lighting
- D. Power
- E. Communications
- F. Kitchen Equipment
- G. Special Equipment
- H. Fire Alarms
- I. Legends
- J. Panel board Schedules
- K. One-Line Diagrams
- L. Short Circuit Calculations
- M. Coordination of Protective Devices
- N. Site Plans
- O. Signage

Electrical drawings shall include the coordination of proposed and existing mechanical and other equipment systems. Contact the Engineering Project Manager for the number of required submittals and requirements at each stage.

SECTION 302 - ELECTRICAL SYSTEMS

As a minimum requirement the entire electrical design and installation shall be in accordance with the Denver International Airport Design Standards, Manuals 1, 5 and 6.

SECTION 303 - SERVICE

Each Airside Concourse and Terminal Building main power distribution originates at the secondary side of the PSCO-furnished transformers. Secondary distribution is 480/277V, 3-phase, 4-wire. The power available is non-conditioned.

Each tenant including airlines will be electronically metered (Westinghouse IQ Energy Sentinel) and monitored by DIA. Energy monitoring module and wiring shall be provided and installed by the tenant.

Tenants shall provide their own separate fused main service disconnect switch. Tenants are not allowed in City controlled electrical rooms to reset a tripped protective device.

SECTION 304 - DISTRIBUTION

The main distribution panels are 277/480V, 3-phase 4-wire. This voltage is being utilized for all lighting (other than incandescent), motors 1/2 HP and larger and any other larger power loads.

208/120V, 3-phase, 4-wire is utilized to serve all convenience outlets, incandescent lighting, motors less than 1/2 HP and other small electrical loads.

All distribution panel boards are located in city controlled electrical rooms.

Each tenant shall be responsible for his own electrical system within his space. Including subpanels and step-down transformers. All breakers within panels shall be series rated.

Tenants shall verify existing conditions and adequate panel capacity for new loads. Tenants shall not use the last three breaker spaces in a city panel.

SECTION 305 - VOLTAGE DROP

Cumulative voltage drop from source to load, including all system components, is designed for a maximum of 5% drop. Motor starting voltage drop shall be designed for a 10% maximum at the motor terminals. Feeders shall be allowed a maximum of 2% voltage drop and branch circuits shall be allowed a maximum of 3% voltage drop.

SECTION 306 - GROUNDING

The grounding system is designed to maintain an equal potential throughout. At each distribution panelboard a ground bus bar has been installed. From this grounding bus bar, a grounding conductor shall be extended to each tenant subpanel.

SECTION 307 - COMMUNICATIONS

Each subcore and central core has a communications room. A cable tray loop interconnects these rooms overhead. Provide a 1" conduit to the cable tray for the premise wiring system by the City. Reference specification Section 16135 "Boxes and Fittings" for size of boxes required. Coordinate with additional requirements in Section 5 – Telecommunications.

SECTION 308 - FIRE ALARM SYSTEMS

Each Airside Concourse and Terminal Building is equipped with a stand-alone fire alarm system. The system is microcomputer based, utilizing distributed processing techniques for alarm reporting, central signaling and selection of audible signal circuits. This system is low voltage, electrically supervised and multiplexed using addressable monitoring and control devices and analog smoke detectors. A fully operational fire command center will be designed in accordance with the requirements of the Denver Building Department and Denver Fire Department. The primary audible signal consists of horns; the visual signal consists of strobe lights. As a secondary means of evacuation, the Fire Department will have access to the paging system. In lieu of microphone jacks at each pull station, a leaky coax is provided. This system allows the Fire Department the use of their portable radios.

Each tenant shall be responsible for Fire Alarm System Design in his own space. Fire alarm device unit costs and labor costs will be available from MCS. All fire alarm design shall conform to A.D.A. requirements. See specification Section 16135 "Electrical Boxes and Fittings" for size of boxes required.

Horn strobes used for personnel alert not associated with the fire alarm system shall strobe a different color than the fire alarm system. No systems other than fire alarm shall strobe clear or white.

SECTION 309 - PUBLIC ADDRESS SYSTEM

The Public Address System is a complete microprocessor switched, programmable, digital and addressable system. This system is modular multi-zone, allowing all airlines to use this system for their operations without additional equipment and/or speakers. All speakers are of the dynamic type. Ambient noise detectors are also being provided so that the volume will automatically adjust and the sound output will always be intelligent. Provisions are incorporated in the system to allow for emergency telephone paging. Each tenant shall be responsible for any public address system design within his own space. Device unit prices shall be available from Ford Audio Visual if the tenant chooses these devices; however, the tenant system must be capable of being overridden by the Airport Public Address System.

SECTION 310 - LIGHTING SYSTEM AND CRITERIA

Illumination levels shall conform to the recommendations of the IES.

Equipment types and lamp source shall be selected on the basis of fixture efficiency and economic adaptation to the particular lighting tasks. Fixtures shall be of standard, high-efficiency, commercial grade. Lighting of offices and other similar low-ceiling spaces shall be provided by the use of recessed fluorescent luminaries. Fluorescent lamp electromagnetic ballast's shall be Class "P" with automatic resetting thermal protectors. All fluorescent lamps shall have a correlated color temperature of 3,500 degrees Kelvin, Industrial fluorescent luminaries will be used to light storage areas, equipment rooms and similar space. Incandescent and specialty lighting systems will be used for accent and architectural lighting functions.

SECTION 311 - EMERGENCY LIGHTING

Selected light fixtures of the means of egress, exit and discharge areas shall be connected to standby PSCO power supply emergency dedicated panels. All emergency lighting in the circulation areas shall be provided by unit equipment such as self-contained battery operated emergency light.

Each tenant is responsible for providing emergency lighting and egress signs as required by the Denver Building Code, NEC and NFPA - 101.

SECTION 312 - ELECTRICAL DESIGN CAPABILITIES

Power capacity is provided at each main electrical room to accommodate a variety of tenants.

Basic Office Tenant	Lighting	3.0 VA/SQ FT
	Receptacles	2.0 VA/SQ FT
Basic Retail tenant	Lighting	4.0 VA/SQ FT
	Receptacles	1.0 VA/SQ FT
Concession Tenant		20 VA/SQ FT
Restaurant Tenant	Kitchen	40 VA/SQ FT
	Dining	20 VA/SQ FT
Food Court Tenant		70 VA/SQ FT
Storage Spaces		2 VA/SQ FT

Tenant spaces that have a calculated load of less than 2 VA/SQ FT and requires only one 20 amp

circuit are not required to furnish and install a Westinghouse IQ energy sentinel.

SECTION 313 - SPECIFICATIONS

Tenant Engineer shall use the most current edition of the DIA Standard Electrical Specifications. No substitutions of specifications will be allowed.

END OF CHAPTER 3

CHAPTER 4 SIGNAGE

SECTION 401 - DRAWINGS/SUBMITTAL REQUIREMENTS

401.1 SIGN LOCATION PLAN(S)

Show in scale (minimum 1/8" = 1'-0" or larger) plan view the locations of all signs.

Numerically key Sign Location Plan(s) to Sign Message Schedule.

Sign Location Plans shall include a plan view of the Tenant space, showing walls, furniture, lighting and all other items which are in proximity to the proposed signage.

401.2 SIGN MESSAGE SCHEDULE

Describe in written form, on 8-1/2" x 11" white bond paper format, using four vertical columns showing:

- A. Sign number (keyed to Sign Location Plan).
- B. Sign message (what each individual sign says).
- C. Sign type (e.g., Primary Identification Sign).
- D. Location (e.g., back wall, ceiling mount, etc.) of each sign.

401.3 SIGN LOCATION ELEVATION(S)

- A. Scale (1/4" - 1" or larger).
- B. Show each sign in elevation relative to Tenant space.
- C. Dimension signs to finished floor, finished ceiling, pedestrian and vehicle traffic, adjacent architectural features, etc. as appropriate.

401.4 SIGN DESIGN INTENT DRAWINGS

Describe all materials, colors, finishes fabrication processes, attachments, mounting details, illumination, maintenance access and requirements, typeface(s), etc.

Identify each sign area in square feet.

Sign assemblies weighing over 50 pounds must have design and attachment reviewed and stamped by a professional Engineer.

401.5 MATERIALS SAMPLES

Material, color and finish samples must fit in a legal size file folder. Submit a sample of the proposed letter style(s) and a sign mock-up. Mock-up shall include all elements of the proposed sign.

401.6 FINAL SUBMITTAL

All Tenant submittals shall be revised to reflect "as-built" conditions upon completion of signage portion of work.

SECTION 402 - DESIGN PARAMETERS

All Tenant signs shall be designed, fabricated, installed, and maintained in conformance with the

DIA signage and graphics standards. Tenant signage shall be secondary to the airport vehicular and pedestrian circulation signage and shall not distract attention from signage provided by the airport. Any Tenant signage must be within Tenant-leased area.

All proposed Tenant signs shall be submitted for review and approval.

402.1 REQUIRED AND AVAILABLE PREPRINTED SIGNAGE

Concessionaires are required to have available signage to meet their individual needs for routine or emergency situations, including but not limited to the following:

- A. Closed for Inventory
- B. Out of Order
- C. Break signage (example: Back in 15 minutes)
- D. Credit card machine inoperable
- E. ATM unavailable

402.2 SIGNAGE AND GRAPHIC TYPES NOT PERMITTED

- A. The following storefront graphics and signage types are not allowed ¹:
 - 1. Animated, moving or flashing signs
 - 2. Non-video sound-generating signs
 - 3. Routed plastic signs
 - 4. Decals, rub-down transfer and window graphics
 - 5. Handwritten signs
 - 6. Awnings and illuminated awnings
 - 7. Wall and/or super graphics²
 - 8. No clocks may be included within signs
 - 9. Unfinished materials
 - 10. Paper or cardboard signs not framed in a clear sleeve or picture-type frame
- B. The following graphics and signage types are not allowed inside stores¹:
 - 1. Routed plastic signs
 - 2. Handwritten signs
 - 3. Wall and/or super graphics
 - 4. Paper or cardboard signs not framed in a clear sleeve or picture-type frame
 - 5. Unfinished materials

¹ Permanent signage listed evidenced prior to May 1, 2010 are presumed approved and will not be subject to compliance action; concessionaires using such signage elements are encouraged to replace them with appropriate and conforming signage as the original items become worn over time.

² The exception is when these are approved as part of the construction design review for new or remodeled concessions.

- C. Other prohibited elements for Tenant signage:
 - 1. Poor attachment (hanging by paperclips, threads, strings, etc.)

2. Aged, dirty, stained
 3. Derogatory to competitors or customers
 4. Inaccurate; content must be correct and current
 5. Tacky (shoddy, in bad taste, cheap, etc.)
 6. Obscuring of travelers' view, either of concourse or into store
 7. Inconsistent design among signs in the store
 8. Promotional activities or events may be conducted only after review and prior written approval.
 9. Molded or formed plastic letters (i.e. those elements which are formed from a sheet of plastic using heat and/or pressure to contour the plastic, altering it from its flat, sheet form).
- D. Stanchions or freestanding signage: Freestanding signage is not permitted outside the Tenant's lease line as defined in the Tenant's Lease agreement. No freestanding, display or suspended signage or graphics are allowed to block any public entrances or exits. Only fixed permanent signage, such as framed menus or other approved signs are allowed in these locations. Small directional sign (example: "Enter Here") may be attached to crowd control stanchions for clarity.

402.3 SIGNAGE APPROVAL PROCESS

- A. All signage approval for new stores will be handled as part of the Construction Review process and approvals will follow the process described in TDG Section 401.
- B. Changes to existing Tenant signage:
 1. Approval for temporary signage: Written notification must be sent to the Contract Administrator at least two weeks in advance of scheduled fabrication and shall include a description, need, and usage timeframe for the temporary signage. Contract Administrator will respond in approximately seven business days.
 2. Approval for permanent signage shall follow process described in TDG Section 401.
- C. Considerations for signage approval:
 1. The following aesthetic considerations shall be applicable in the overall appearance of signs:
 - a. Clear message—visibility
 - b. Appealing graphics
 - c. Correct spelling
 - d. Mounting/ framing (no visible tape –hidden double-sided tape may be used)
 - e. Within lease line as established or re-established in the Concession Agreement or as pre-approved by Concessions Administration for specific circumstance
 - f. Neat, clean, and well maintained
 - g. Appropriate size for space

- h. Quality materials (laminated, durable, well built, made for stability, straight, etc.)
 - i. Paper or cardboard signs contained in clear sleeves or in picture-type frames only.
 - j. Chalk menu boards may be used in café type restaurants with prior approval by Concessions Administration and so long as calligraphy is of good quality and such a sign is harmonious with the overall theme of the restaurant
 2. The following safety considerations shall be applicable in the overall design of the signage and graphics system:
 - a. Signs shall be placed in locations to minimize accidental damage.
 - b. For the safety of persons walking under signs, a minimum of 7'6" clearance is required in public areas.
 - c. Sharp edges shall be avoided, especially for signs on posts in pedestrian circulation areas.
 - d. Proper location of signs shall avoid pedestrian bottlenecks caused by too many people stopping to read the same sign in a heavily used circulation area; signage shall not obstruct traffic.
- D. Televised, electronic and video displays are to be submitted for approval 60 days in advance to the Contract Administrator. The Contract Administrator will respond within seven business days. LCD menu boards, panoramic, and flat screens, or any special signage requirements placed upon franchisee concessionaires will be considered upon showing of corporate directive. Approvals will not be unreasonably withheld.
- E. The Airport reserves the right to change or amend this approval process on a case-by-case basis to serve best its business requirements and needs.

SECTION 403 - BLADE SIGNS [TERMINAL LOCATION ONLY – LEVEL 5 & 6]

Signs installed above a Tenant's storefront, on the public side of the storefront, or perpendicular to the storefront are referred to as "Blade" signs. Blade signs are permitted in the Terminal, on Level Five and select areas of Level Six. They are not permitted in Mod 2 of the Sixth Level. All blade signs shall conform in design and construction to DIA Signage Standards for Blade Signs. Sign dimensions, use of materials, supporting brackets, electrical requirements, and illumination levels are all standardized. Sign message is the only portion of the sign that may be modified.

Sign message and graphic treatment on the sign face shall be designed such that no message or graphic treatment is placed within a three inch border, as a minimum from the edge of the sign face on all four sides, to the beginning of the message or graphic treatment. Graphic treatment may feature Tenant's corporate standard colors, typeface, logo or other concession related graphics. Border color shall match DIA's standard dark grey opaque background color.

Only one blade sign is permitted per store entry. Tenants having less than a thirty feet entrance may be required to modify the square foot area allowed for graphic treatment of messages to accommodate adjacent Tenant signage requirements. The Tenant shall be responsible for providing, at their expense, new blade signs and all associated enclosures, supporting arm, sign face and internally illuminated components.

403.1 APPLICATION

Temporary sign faces of good quality “Gator Foam”, PVC, Plexiglas, masonite or equal must be produced to take the place of those removed and taken back to the shop for revision. Extreme care must be taken to remove and re-install the fiberglass sign faces, as no replacements exist.

When sanding off the existing paint to the sign face, extreme care needs to be taken. There is to be no damage to the fiberglass faces. Take care not to create uneven surfaces when sanding off the old paint as the surface consistency will be visible from the floor below. Tenant will be responsible for any damage to the sign faces and assemblies.

403.2 TRANSPORTATION

Care is required to prevent any damage to the sign faces by wrapping them individually with foam, bubble wrap or equivalent.

SECTION 404 - EXTERIOR (OUTDOOR) SIGNS

All exterior Tenant signs shall comply with the following criteria:

- A. Signs shall be fabricated from materials with finishes and colors to match airport signs of similar function and type of installation.
- B. The Tenant shall submit electrical design analysis and calculations prepared by a certified professional engineer and shall coordinate design with existing work as required.
- C. The Tenant shall submit structural design analysis and calculations prepared by a certified professional engineer.
- D. All sign component members, structural supports, and foundations shall be designed to withstand the loading conditions and design methods set forth in this manual and the local building code.

SECTION 405 - ILLUMINATED SIGNS

405.1 INTERIOR AREAS

Where required or as approved, illuminated signs must meet the following criteria:

- A. All electrical components shall be approved by Underwriters Laboratories, Inc. (UL).
- B. Lighting units that develop high temperatures shall be adequately ventilated and placed away from other materials such as acrylic sheet paint that have a tendency for damage by heat.
- C. The signage and graphic design consultants shall coordinate with electrical engineering design consultants providing services in areas where internally illuminated signs shall be installed.
- D. The design consultants for the signage and graphics system shall not mix different types or colors of lighting sources.
- E. Sign systems with more than one panel to the sign face shall be designed with interlocking panel edges to prevent light leaks at the joints of panels.
- F. All lamps, ballasts and fuses shall be designed to be readily accessible for maintenance. Signs shall be designed for quick and easy relamping.

405.2 EXTERIOR (OUTDOOR) AREAS

Signs utilizing an external illumination system shall consider the following criteria in the design of these signs:

- A. External lighting shall be carefully placed to avoid reflections in driver's eyes as well as on the sign message.
- B. External lighting shall be designed to eliminate unwanted light spill.
- C. The signage and graphics design consultants shall assess and assure that exterior signage lighting does not interfere with air traffic control operations.
- D. **Seams, joints, and connections in the mounting plate shall be waterproofed and gasketed to prevent moisture penetration and light leaks. Weep holes shall be provided and light proofed. Signs shall be adequately sealed against weather and insects which will be attracted to the light source. This shall require the incorporation of closed mesh screen over any openings in the light box.**

405.3 ELECTRICAL REQUIREMENTS

The electrical design of illuminated signs shall be coordinated with the electrical engineering design consultants for the facility in which these signs shall be installed. All electric components shall be UL approved and feature a UL label in an inconspicuous location.

- A. Code compliance: In addition to the current local building code, the National Fire Protection Association (NFPA) 70 and American National Standards Institute (ANSI) C2 shall be followed for electrical design. For voltages, the ANSI C84.1 standard of preferred voltages shall be used as a guide. References 6, 7, 30, 35, and 36.
- B. Grounding: Grounding for illuminated sign systems and equipment, including conduit systems, secondary neutral wire and miscellaneous grounds shall comply with Article 250 of NFPA 70, Reference 35, and IEEE 142, Reference 30. Equipment grounding shall be provided with insulated grounding conductors, sized in accordance with NFPA 70, Table 250-95, Reference 35 and connected from the building system grounding to all fixtures, panels, controls, receptacles, disconnect switches and non-current carrying electrical metallic enclosures. The resistance of the illuminated sign system grounding to earth shall be a maximum of 5 ohms.
- C. Cart signing: Our current marketing plan does not include carts. However, should carts be used at the Airport, there will be detailed signage, display and operational guideline requirements.

SECTION 406 - TEMPORARY SIGNS

406.1 GENERAL

Temporary signage will follow the same "design guidelines" as specified for permanent signage for message, color, layout, size, etc.

Interior temporary signs may be fabricated of foam core or other suitable rigid materials. Temporary signs exposed to the weather must be fabricated from weatherproof materials.

Each temporary sign must have a designated expiration date. Such dates need to be documented in the project file. Typically, 30 to 45 days is ample time to fabricate a permanent sign. Where warranted, expiration dates may be extended approximately the same number (or less) of the days

originally approved. Temporary signs must be removed on or before their expiration date.

406.2 HOLIDAY DECORATIONS – PUBLIC AREAS

Tenants may display pre-approved Holiday Decorations in public areas as described:

- A. Tenants must submit holiday décor proposals for review and approval prior to display.
- B. Tenants must complete decorating by approved install and removal dates for any U.S. holidays. Event display periods for holidays may not exceed a two week period and must be removed no later than the Saturday following that holiday; however, for Thanksgiving, Hanukkah, Christmas, and New Years:
 1. Tenants may decorate establishment areas no earlier than one day after Veterans Day.
 2. Complete all decorations by six o'clock in the morning on December 1st.
 3. Remove all decorations by six o'clock in the morning on January 3rd.
- C. The following holiday décor rules apply:
 1. Displays must comply with all airport security rules and regulations.
 2. Holiday décor must not obstruct or block doorways; avoid creating a hazard.
 3. Decorations must not damage doors, walls, ceilings, or floors. Tenant must repair any damages caused by décor/fasteners no later than one day after removal.
 4. Displays must pose the least impact on airport traffic and most attention to safety.
 5. Holiday decoration must be within Tenant's lease lines. Tenant decor must not encroach into the common areas or on storefronts (garland décor on railings located within the demised lease line permitted).
 6. Overall display reflects application of a decorating theme; display shows thought and effort. It is discouraged to refer to any single religion in the decorations (i.e. nativity scene, three wise men, menorah, etc). Suggest promotion of a season.
 7. There is to be no sale of décor pieces. Tenants must remove décor price tags and labels with the exception of authorized holiday décor retailers.
 8. Holiday decoration must be without attachment to ceiling; no items hanging from ceiling tiles or secured directly to tiles or support grids.
 9. Bows, ribbon, wrapping, and similar décor are to be first generation (i.e. no kinks, wrinkles, tears) and should not be plastic.
 10. Display presentation must be neat and have an overall clean look with no torn, faded, or ragged elements.
 11. Garland, wreaths, trees, and other plant-like décor must be made of fire retardant/resistant, high quality, cleaned, and primed material.
 12. Plants (poinsettias) may be live if well manicured at all times.
 13. Items used to bind décor should not be visible (i.e. tape, staples, pushpins;

double-sided tape recommended). Zip ties, or the like, used must be cut to appropriate size with rough edges avoided and protrusions pointing away from the public.

14. Light bulbs may not be burned-out or blinking.
15. Tenants must not use ornaments as décor by themselves.
16. Tenants must not use tinsel, spray snow, or live (Christmas) trees (artificial trees are allowed).
17. Wrapped over-size packages may be used.

406.3 HOLIDAY DECORATIONS - COUNTER LOCATIONS

The following additional décor rules apply:

- A. No illuminated decoration (including lights) may be used anywhere in public counter areas.
- B. For Counter Tenants with back walls, decorations may be attached anywhere on the back wall including doors.
- C. Decorations may sit on the floor or furniture behind counters.
- D. Plants or holiday related decorations may sit on the counters, one per counter section or one per eight feet of counter; no other decorations may be attached or sit on the counters.

406.4 TEMPORARY SIGNS - BANNERS

All banner locations, method of attachment and messages must be approved prior to installation in writing by the Engineering Department with a beginning and end date. All banners must have their beginning and end date affixed to a visible area of the banner. Maximum time a banner may be displayed is 45 days.

Banner graphics are typically considered temporary graphics and must have a removal date set by the EPM in charge of the review and approval of such banner.

Banners may not be located on or outside of the Tenant's leased areas. Approved banners may be located within a Tenant's leased space as long as it is recessed back four feet or more within the Tenant's lease line or, a minimum of 25% of the perpendicular distance from the lease line to the back of the Tenant space.

Banners must be vinyl or fabric and meet all City and County of Denver Fire Code requirements. Top of banner to be supported by a rigid plastic or wood rod concealed within banner sleeve.

- A. Airline banners at ticket counters locations:
 1. Banners at airline ticket counters may only be used to notify passenger of new service, new Airline, relocation or discontinued Airline operation.
 2. Airlines may only display "new service" (new destinations) for up to 45 days.
 3. No promotions, club bonus, campaigns, or fares may be displayed.
- B. Airline banners for hold room locations:
 1. Only "new service" banners are allowed (same restrictions as noted above). All such banners must be displayed against a Tenant wall or podium. No banners may hang from ceiling or other overhead structure.

2. Column wraps allowed at exclusive leased holdrooms only.

END OF CHAPTER 4

CHAPTER 5 TELECOMMUNICATIONS

SECTION 501 - GENERAL

501.1 GENERAL

Denver International Airport owns and operates a comprehensive Premise Wiring and Communications System (PWCS) which serves voice, data, video, radio frequency and Local Area Network services throughout the campus. Tenants designing facilities on the DIA campus shall obtain current copies of these documents and incorporate the requirements therein into their contract drawings and specifications.

Sections included in these documents include:

- A. Design Guidelines for Telecommunications Duct Bank and Underground Concrete Vaults.
- B. Design Guidelines for Telecommunications Inside Plant Equipment Spaces and Pathways
- C. Design Guidelines for Telecommunications Horizontal Wiring Pathways
- D. Design Guidelines for Tenant and Subsystem use of Network Virtual LANs
- E. DIA Radio Frequency (RF) Technical Standards
- F. Tenant Procedures for Ordering Telephone Services and Reporting Telephone Repair Problems at Denver International Airport.

Tenants and their designers may obtain copies of the above documents in either hard copy or soft copy (Microsoft Word and AutoCad) by contacting the DIA Project Manager.

END OF CHAPTER 5

CHAPTER 6 CIVIL - STRUCTURAL

SECTION 601 - GENERAL

601.1 WELDING

ALL WELDING SHALL ADHERE TO AWS CODES with the following exceptions:

- A. Cross country gas and oil lines shall conform to API 1104
- B. In building gas lines shall conform to ASME B31.1
- C. All hot and chilled water lines and fittings shall conform to ASME B31.1
- D. Fire Sprinkler lines shall conform to AWS B2.1 (per national Fire Code)

DIA Project Manager and Designer will determine any further welding code requirements not covered above, on an individual basis.

601.2 FABRICATION (SHOP WORK AND FIELD ERECTION OR INSTALLATION OF MATERIAL)

- A. Shop drawings shall be submitted to DIA Project Manager for review at least two weeks prior to fabrication.
- B. All welders shall be tested and certified to the applicable ANSI/AWS, ANSI/ASME, ANSI/API, or other applicable ANSI welding code, within one year of notice to proceed. Welder qualification testing shall be administered and witnessed by an AWS Certified Welding Inspector.
- C. Welder certification and welding procedures shall be submitted to DIA Project Manager, prior to start of any fabrication.
- D. Quality control reports for welding shall be submitted to DIA Project Manager prior to shipment of the material (shop fabrication) or prior to any of the field welds being covered. An AWS Certified Welding Inspector shall perform the quality control weld inspections. The inspector's certification papers shall be submitted, for approval, prior to welds being inspected.
- E. Material test Reports (MTR) for all materials (steel, bolts, electrodes, etc.) shall be submitted to DIA Project Manager prior to fabrication of structure.

NOTE: Meet individual code requirements of material type, grade, thickness, etc.

END OF CHAPTER 6

CHAPTER 6 STRUCTURAL

SECTION 601 - GENERAL

601.1 WELDING

ALL WELDING SHALL ADHERE TO AWS CODES with the following exceptions:

- A. Cross country gas and oil lines shall conform to API 1104
- B. In building gas lines shall conform to ASME B31.1
- C. All hot and chilled water lines and fittings shall conform to ASME B31.1
- D. Fire Sprinkler lines shall conform to AWS B2.1 (per national Fire Code)

DIA Project Manager and Designer will determine any further welding code requirements not covered above, on an individual basis.

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- A. Shop drawings shall be submitted to DIA Project Manager for review at least two weeks prior to fabrication.
- B. All welders shall be tested and certified to the applicable ANSI/AWS, ANSI/ASME, ANSI/API, or other applicable ANSI welding code, within one year of notice to proceed. Welder qualification testing shall be administered and witnessed by an AWS Certified Welding Inspector.
- C. Welder certification and welding procedures shall be submitted to DIA Project Manager, prior to start of any fabrication.
- D. Quality control reports for welding shall be submitted to DIA Project Manager prior to shipment of the material (shop fabrication) or prior to any of the field welds being covered. An AWS Certified Welding Inspector shall perform the quality control weld inspections. The inspector's certification papers shall be submitted, for approval, prior to welds being inspected.
- E. Material test Reports (MTR) for all materials (steel, bolts, electrodes, etc.) shall be submitted to DIA Project Manager prior to fabrication of structure.

NOTE: Meet individual code requirements of material type, grade, thickness, etc.

END OF CHAPTER 6

CHAPTER 7 CADD REQUIREMENTS

SECTION 701 - GENERAL

701.1 GENERAL

Drawing sizes, fonts, layers, and symbols shall comply with the latest version of Chapter 25 in the DIA Design Standards Manual 1.

SECTION 702 - CADD SUBMITTAL REQUIREMENTS:

702.1 TENANT CADD REQUIREMENTS

All issue for construction and project record drawings shall be provided by the tenant to DIA in accordance with DIA CADD standards set forth in Design Standards Manual 1.

702.2 CONCESSION CADD REQUIREMENTS

CADD files that match the tenant's hardcopy drawings must be submitted via CD-ROM in MS-Windows format. All drawings must represent precision input and follow industry standard CADD practices. The drawings must reflect true design dimensioning and must NOT be graphic representations of the design. All site, civil and utility drawings MUST be produced using units in feet and the DIA Grid Coordinate System. The DIA project manager must approve submittal and may require adherence to the requirements set forth in DIA design standards.

702.3 AS-BUILT REQUIREMENTS

At the completion of the project, two complete full size reproducible sets of "as built" drawings and one CD-ROM containing all drawing files (in latest AutoCAD format), specification files (in latest Microsoft Word format) and a bookmarked Adobe PDF file of project drawings and specifications of "as-built" conditions shall be submitted to the Owner for file record as directed by the Project Manager.

END OF CHAPTER 7

APPENDIX A FOOD AND BEVERAGE

SECTION A101 - DESIGN PARAMETERS

A101.1 GENERAL

Generally, the back wall of the tenant space on the concourses is glass from floor to ceiling, with views to the adjacent airplane gates and runways beyond. If Tenant proposes to use this wall surface for displaying merchandise and if the Tenant proposes to construct a wall directly in front of this glass panel to create a wall surface in which they can mount shelves and brackets, they will be required to replace the glass panels with spandrelite panels before they construct their wall.

A101.2 STOREFRONTS

Storefronts shall be designed to be self-supporting between structural supports and shall be capable of accepting all liveloads, deadloads, and seismic loads imposed and transfer all loads into building structure.

Storefronts shall be capable of expanding and contracting in all directions. Concealed fasteners shall be used wherever possible. Where exposed, non-corrosive, phillips flat-head machine screws of compatible material shall be used.

Entrance doors shall comply with requirements of DBC for barrier-free accessibility and the ADA Accessibility Guidelines. Doors which are single or double acting shall be self closing.

Storefronts used to separate conditioned and unconditioned spaces shall include concealed, low conductance thermal barrier.

Components of the storefront system shall be as follows:

- A. Framing members shall provide for flush glazing on all sides with no projecting stops. Minimum face dimension shall be 2-1/4" for horizontal and vertical members.
- B. Doors shall be aluminum stile and rail type. Frame shall be tubular with mechanical joints and concealed reinforcing plates. Doors shall be medium, or wide stile, 1-3/4" thick factory glazed. Thin stile doors may be used in certain low occupancy areas.
- C. Hardware shall be manufacturer's heavy duty units complying with ANSI A156.5, Grade 1.

SECTION A102 - SIGNAGE

A102.1 TERMINAL BUILDING LOCATIONS ONLY

Each tenant is allowed one Primary Identification sign located overhead, centered above tenant storefront.

Tenants will utilize the signband provided, maintaining the provided dark grey opaque background with flush white illuminated message, less 9" each end, left and right

For locations without provided storefront, the width of the sign may be the width of the tenants storefront, less 9" each end, left and right.

Signs shall be internally illuminated only

Sign may contain name of tenant or service (no graphics), maximum letter height, 12", includes ascending and descending script; tenant choice in letter style

In shared spaces less than 30 feet in width, this sign will be equally divided.

For locations without provided storefronts, the width of the sign may be the width of the tenant's storefront, less 9" on each end, left and right and maintain the same design criteria as described above.

All signage and graphics behind display windows or storefront glass must be recessed 6" or more.

A102.2 CONCOURSE LOCATIONS ONLY

Each tenant is allowed one Primary Identification Sign per public entry.

Signs shall be individual letters, numbers and/or logos with exposed neon only; mount signs directly to existing sheetrock soffit or mount to a transparent background and suspend from stainless steel aircraft-type cable, as required; do not paint soffit; conceal all transformers, conduit, raceways, wires, connections, etc.

For uniform soffits 16 inches in height or more, the maximum message and graphic height shall be 12" ; recess message and graphic a minimum of 12" each end.

Signs must not interfere in any way with the function, inspection, repair or testing of sprinklers or other building components.

For soffits with irregular heights and/or soffits 16 inches or less in height, graphics relating to logo graphics/design may not exceed 65% of the soffit height and must meet the criteria described above.

END OF APPENDIX A

APPENDIX B RETAIL TENANTS

SECTION B101 - DESIGN PARAMETERS

B101.1 GENERAL

Generally, the back wall of the tenant space on the concourses is glass from floor to ceiling, with views to the adjacent airplane gates and runways beyond. If Tenant proposes to use this wall surface for displaying merchandise and if the Tenant proposes to construct a wall directly in front of this glass panel to create a wall surface in which they can mount shelves and brackets, they will be required to replace the glass panels with spandrelite panels before they construct their wall.

B101.2 STOREFRONTS

Storefronts shall be designed to be self-supporting between structural supports and shall be capable of accepting all live loads, dead loads, and seismic loads imposed and transfer all loads into building structure.

Storefronts shall be capable of expanding and contracting in all directions. Concealed fasteners shall be used wherever possible. Where exposed, non-corrosive, phillips flat-head machine screws of compatible material shall be used.

Entrance doors shall comply with requirements of DBC for barrier-free accessibility and the ADA Accessibility Guidelines. Doors which are single or double acting shall be self closing.

Storefronts used to separate conditioned and unconditioned spaces shall include concealed, low conductance thermal barrier.

Components of the storefront system shall be as follows:

- A. Framing members shall provide for flush glazing on all sides with no projecting stops. Minimum face dimension shall be 2-1/4" for horizontal and vertical members.
- B. Doors shall be aluminum stile and rail type. Frame shall be tubular with mechanical joints and concealed reinforcing plates. Doors shall be medium, or wide stile, 1-3/4" thick factory glazed. Thin stile doors may be used in certain low occupancy areas.
- C. Hardware shall be manufacturer's heavy duty units complying with ANSI A156.5, Grade 1.

SECTION B102 - SIGNAGE

B102.1 TERMINAL BUILDING LOCATIONS ONLY

Each tenant is allowed one Primary Identification sign located overhead, centered above tenant storefront.

Tenants will utilize the signband provided, maintaining the provided dark grey opaque background with flush white illuminated message, less 9" each end, left and right

For locations without provided storefront, the width of the sign may be the width of the tenants storefront, less 9" each end, left and right.

Signs shall be internally illuminated only

Sign may contain name of tenant or service (no graphics), maximum letter height, 12", includes ascending and descending script; tenant choice in letter style

In shared spaces less than 30 feet in width, this sign will be equally divided.

For locations without provided storefronts, the width of the sign may be the width of the tenant's storefront, less 9" on each end, left and right and maintain the same design criteria as described above.

All signage and graphics behind display windows or storefront glass must be recessed 6" or more.

B102.2 CONCOURSE LOCATIONS ONLY

Each tenant is allowed one Primary Identification Sign per public entry.

Signs shall be individual letters, numbers and/or logos with exposed neon only; mount signs directly to existing sheetrock soffit or mount to a transparent background and suspend from stainless steel aircraft-type cable, as required; do not paint soffit; conceal all transformers, conduit, raceways, wires, connections, etc.

For uniform soffits 16 inches in height or more, the maximum message and graphic height shall be 12"; recess message and graphic a minimum of 12" each end.

Signs must not interfere in any way with the function, inspection, repair or testing of sprinklers or other building components.

For soffits with irregular heights and/or soffits 16 inches or less in height, graphics relating to logo graphics/design may not exceed 65% of the soffit height and must meet the criteria described above.

END OF APPENDIX B

APPENDIX C CAR RENTAL

SECTION C101 - SIGNAGE

C101.1 TERMINAL BUILDING LOCATIONS ONLY

Primary Identification Signs:

All signs will be located on the back wall of the Tenant's space. Signs mounted to or placed upon the service counter are not allowed. Signage allowed at these locations will be as follows:

- A. located on back wall
- B. sign shall contain Tenant logo only, maximum 24 inches high
- C. sign may not be internally illuminated
- D. all signs to align with top of door frame.

Secondary Identification Signs:

Signs will be located on the back wall of the Tenant's space. Signs mounted to or placed upon the service counter are not allowed. Signage allowed at these locations will be as follows:

- A. This category includes promotional, advisory, regulatory, informational, notification and all approved non-primary identification type signs.
- B. This category may not be used to increase the size or impact of the primary identification sign.
- C. Located on back wall.
- D. Signs may not be internally illuminated.
- E. All secondary signs shall be aligned, flush to the tip of an imaginary line 45 inches above finished floor; signs may extend to within 12 inches of the finished floor
- F. Signs may be located on top queuing stanchions. These signs are limited to queuing information only and shall not exceed 24 square inches, and shall not sized or located as to interfere with pedestrian traffic; these signs must remain within the designed queuing area assigned for each tenant; these signs may be double sided.
- G. Maximum letter height for secondary signs shall be 2 inches
- H. Signs may be utilized for approved messages only at counters as further detailed
- I. All secondary messages just occur on the back wall below the top of the counter turret except as further described.

C101.2 SUPPORT SERVICE FACILITIES

Directional signage shall be limited to 6 square feet, 4 feet overall height maximum.

Regulatory signage shall be limited to 2 square feet, 8'-6" overall height maximum.

Flashing, blinking, animated, audio, or moving signs are permitted.

Backlit illuminated awning signage is not permitted.

Exterior Building Signage

Building signage may be backlit in the form of individual letters or opaque background cabinet type signs.

Area of exposed signage per elevation shall not exceed one square foot per lineal foot of building frontage.

Height on sign on building face shall not be higher than the building height.

The letter height for letters attached on buildings shall be determined by the greater of:

- A. One inch of height per 30 foot of distance from the nearest intended point of visibility.
- B. Letter height cannot exceed 12% of the building height.
- C. Within the signage square foot requirement.

Each Building must display an identification plaque. The plaque is to be provided by the Tenant. The identification number is assigned by DIA. The wall plaque shall be approved by the EPM prior to its installation on the Building. The plaque shall be mounted to the Building elevation facing the major access street.

Free Standing Signage

The height of any free standing sign shall not exceed 25 feet above the adjacent grade elevation of the sign location. Only one freestanding sign is permitted per plotted lot or business.

Setback shall be 15 feet from property lines or easements.

Maximum square footage for freestanding may not exceed 200 square feet per elevation (2 face limit). If more than two elevations are utilized, the 200 square feet will be divided by the number of elevations (ex. - 3-sided sign would be 33 square feet per elevation).

No exposed pipe or structural supports are permitted. All pipe or supports must be covered in material complimentary to the building architectural components.

All free standing signs shall incorporate a landscaped pad area equal to the square footage area of the sign.

Monument Signage

One monument sign per public entrance will be allowed. Monument sign may not exceed 6 feet in height and may be backlit. Size is drawn from the linear building frontage from which the elevation is on, and area subtracted from allowed wall signage. Monument sign may be no closer than 25 feet to adjacent roadway pavement. Secondary signage will be allowed as monument sign.

END OF APPENDIX C

APPENDIX D AIRLINES

SECTION D101 - SIGNAGE

D101.1 TERMINAL BUILDING LOCATIONS ONLY

Temporary Signs/Counter Top Signs

Temporary signs, banners, or counter signs are not to be installed unless approval was granted by the Graphics Committee. Baggage tag information, printed schedule information and frequent flyer applications are exempt.

Airline Baggage Service Offices

Back wall graphics should be centered horizontally and vertically behind the baggage counter. Messages will be limited to corporate logo, copy and office identification only. Size and space utilized should be proportional to counter area.

Airline Podiums

A 1'-6" x 2'-7" area is provided in the top right hand corner of the gate podiums for airline identification. This is the only area on the gate podium where airlines signage may be used. Materials and graphic standards are the responsibility of the airlines.

D101.2 TERMINAL / CONCOURSE LOCATIONS

General

- A. Tenants may utilize a sign band area on the ticket counter back wall for the airline name and logo. See diagram A at the end of this section.
- B. Maximum width of airline back wall sign equals width of counter space leased minus 12 inches recessed from each side. See Diagram B at the end of this section.
- C. Height of the sign band is 40 inches centered on the second reveal from the finished floor.
- D. Back wall sign may not exceed 9 ½ inch projection from the back wall.
- E. Back wall signs must clear or include existing obstructions. See Diagram B at the end of this section.

Message/Copy

Acceptable message/copy is limited to the airline name and logo for the back wall. Routes, services, or flight information signs are not permitted on back walls.

Materials

The use of unique materials and application are encouraged. Your graphic designer may have the flexibility to utilize materials and mediums to create an attractive and unique corporate image. Color accent bands are acceptable. Unacceptable materials include:

- A. Paper
- B. Exposed Neon
- C. Illuminated Plastic Face Signs (flat, formed or embossed)
- D. Raw Plywood

E. Painted Wall Graphics

Illumination

Airlines may have back wall signs with interior illumination that does not exceed 25% of the allowable graphic area. Flashing / blinking lights or signs are not permitted.

Samples

Samples of materials and colors must be submitted prior to the EPM for approval.

D101.3 CONCOURSE LOCATIONS - LOADING BRIDGES

Airlines will be permitted to install one airline logo sign on each side of each pedestrian loading bridge on the airside concourses. The construction installation will be at the expense of the airline. Scale size layouts, along with the color samples, shall be submitted to the Engineering Project Manager for approval prior to fabrication.

Each sign shall be 54" long and 30" tall. The upper 10" of the sign shall be issued for the "WELCOME TO DENVER" message that shall be standard on every sign (see attached layout). Background color shall be PPG - White Diamond Pearl. "WELCOME TO DENVER" letters shall be all capital in the Frutiger 55 style that is standard at DIA. Letters shall be 3" tall and shall be in DIA blue.

The lower 20" of the sign is set aside for airlines names and/or logos. Colors and layout are at the discretion of each airline. The Engineering Project Manager will review proposed plans to insure that they are in the character with the quality expected at DIA.

Signs are designed to be interchangeable. Mounting brackets are to be constructed with anodized aluminum angles (natural finish) continuous top and bottom. The angles will form a U-shaped bracket that will allow the logo signs to be slid in and out. Logo signs are to be painted on 1/8" aluminum. No illumination will be permitted.

Signs will be centered both ways.

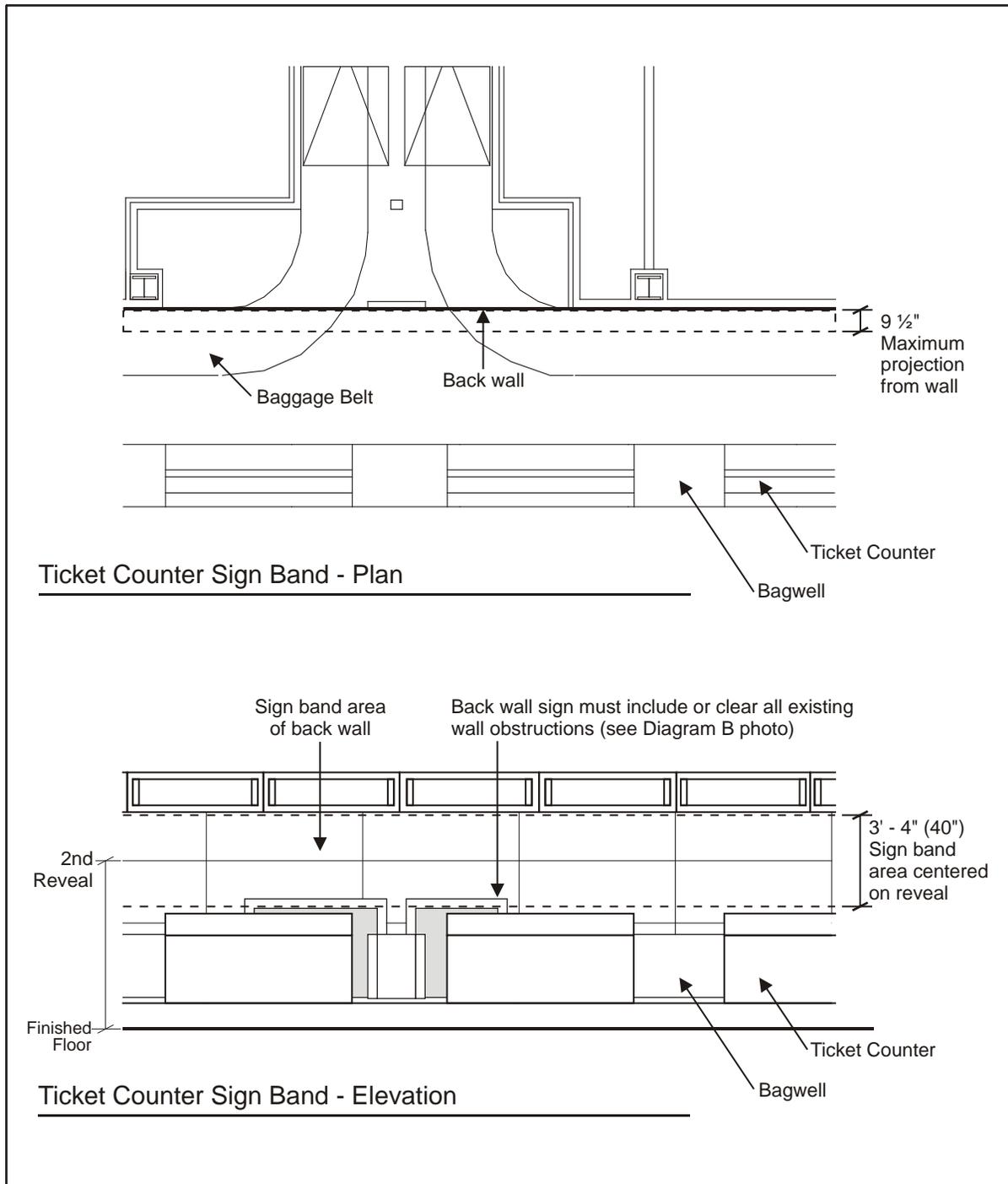


Diagram A

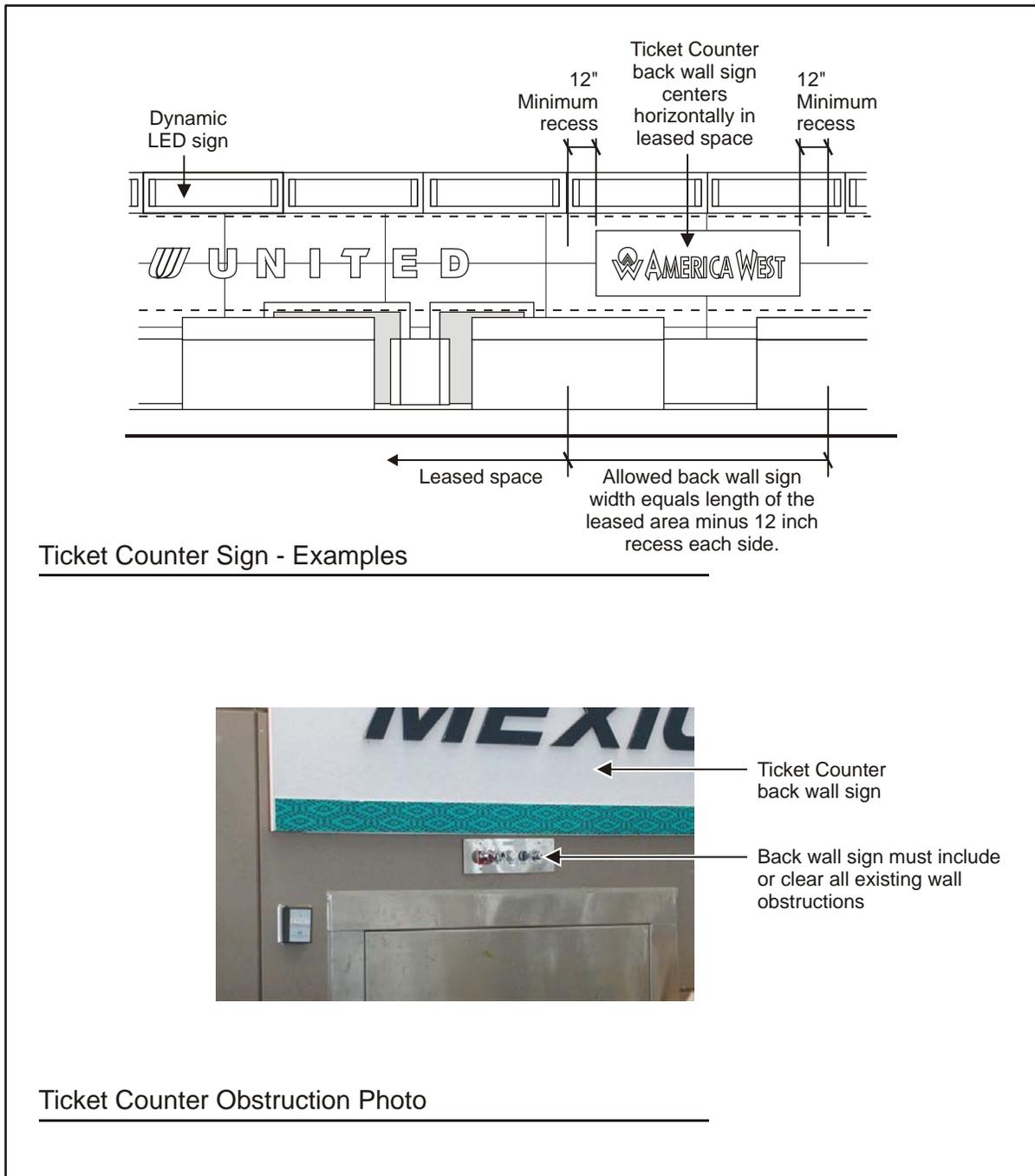


Diagram B

END OF APPENDIX D

APPENDIX E SUPPORT FACILITIES

SECTION E101 - GENERAL DESIGN PARAMETERS

The Airport's primary concern with the design of Support Facilities focuses on design issues relevant to site development. The following items need to be addressed in the design of each individual support facility.

Roads and Circulation	Utilities and Service Easements
Setbacks and Zoning Issues	Off Street Parking
Building Heights	Density
Site Coverage	Orientation
Snow Storage and Removal	Grading
Walls and Fences	Exterior Lighting
Signage	Landscape and Irrigation

Support Facilities vary in form and function and no clear standards can govern all facilities. Support facilities will be reviewed on an individual basis, and Tenants are encouraged to establish an on-going review process with the designated Project Manager from the Planning and Engineering Division at Denver International Airport to ensure their designs meet with airport approval.

Generally, all support facilities shall conform to the following basic design criteria:

- A. Cornice Lines shall be horizontal. Flat roof, rather than sloped or curved surfaces are preferred.
- B. Zoning regulations should establish that buildings of a like scale and similar usage should be grouped together.
- C. Entry and access into buildings should preferably be from south and east.
- D. Provide for snow stacking and removal.
- E. Setbacks and Site Coverage requirements as indicated on the following pages.

SECTION E102 - SITE COVERAGE / SETBACK REQUIREMENTS

Site Coverage and Setback requirements for support facilities are as follows:

Minimum Landscape (Parking)	Minimum Landscape (Parking)	Setback Limits (Minimum)				
		Front	Front	Side	Rear	
		Pena Blvd.	Others	--	--	
		**	**			
Air Cargo Areas	10%	10%	150 ft.	135 ft	25 ft	300 ft
Maintenance Hangars	10%	10%	150 ft.	135 ft	25 ft	300 ft
Car Rental Facilities	10%	20%	150 ft.	135 ft	25 ft	35 ft
Airport Support Areas	10%	20%	150 ft.	135 ft	25 ft	35 ft
Aviation Related	10%	20%	150 ft.	135 ft	25 ft	35 ft
General Aviation - (FBO) Commercial	10%	10%	150 ft.	135 ft	25 ft	200 ft
General Aviation - Non-Commercial	10%	10%	150 ft.	135 ft	25 ft	35 ft

** NOTE:
 Setback Limits under Category "Pena Blvd." refers to limits for buildings whose building front faces Pena Boulevard Setback Limits under category "Others" refers to limits for buildings whose building front faces any street other than Pena Boulevard.

SECTION E103 - SITE COVERAGE / SETBACK DEFINITIONS

Air Cargo Areas:	The operation of a facility (facilities) for the handling and storage of cargo and mail.
Maintenance Hangars:	The operation of a facility for the maintenance and overhaul of air carrier aircraft, engines, parts, accessories, and equipment.
Airport Support Areas	The operation of a facility by the City to support or protect the required activities of the airport, and (2) the operation of a facility by others to provide services that improve the overall effectiveness of the Airport.
Aviation Related:	The operation of a facility (or facilities) which are dependent upon proximity to the Airport for their effective performance or which enhance transportation and commerce within the Denver Metro Area.
General Aviation (FBO) (Commercial)	The operation of a hangar and related building facilities by a business involved in the sale to the general public of services related to the operation, maintenance and servicing of general aviation aircraft.
General Aviation (Non-Commercial)	The operation of a hangar and related business facilities by an industrial, corporate, or business Tenant to hangar one or more aircraft it owns or operates solely in connection with the internal conduct of Tenant's business for the transporting of the Tenant's personnel, materials, and products.
Minimum Landscape (SITE)	Refers to the portion of the surface area of each building site that must be covered by landscaping, expressed as a percentage of the Building Site, excluding landscaping coverage included in the Parking areas.
Minimum Landscape (Parking)	Refers to the portion of the surface area of each building site that must be landscaped within the parking areas on the Building Site.

SECTION E104 - SIGNAGE

E104.1 SUPPORT FACILITIES

Directional signage shall be limited to 6 square feet, 4 feet overall height maximum.

Regulatory signage shall be limited to 2 square feet, 8'-6" overall height maximum.

Flashing, blinking, animated, audio, or moving signs are not permitted.

Backlit illuminated awning signage is not permitted.

E104.2 EXTERIOR BUILDING SIGNAGE

Building signage may be backlit in the form of individual letters or opaque background cabinet type signs.

Area of exposed signage per elevation shall not exceed one square foot per lineal foot of building frontage.

Height on sign on building face shall not be higher than the building height.

The letter height for letters attached on buildings shall be determined by the greater of:

- A. One inch of height per 30 foot of distance from the nearest intended point of visibility.
- B. Letter height cannot exceed 12% of the building height.
- C. Within the signage square foot requirement.

Each Building must display an identification plaque. The plaque is to be provided by the Tenant. The identification number is assigned by DIA. The wall plaque shall be approved by the EPM prior to its installation on the Building. The plaque shall be mounted to the Building elevation facing the major access street.

E104.3 FREE STANDING SIGNAGE

The height of any free standing sign shall not exceed 25 feet above the adjacent grade elevation of the sign location. Only one freestanding sign is permitted per plotted lot or business.

Setback shall be 15 feet from property lines or easements.

Maximum square footage for freestanding may not exceed 200 square feet per elevation (2 face limit). If more than two elevations are utilized, the 200 square feet will be divided by the number of elevations (ex. - 3-sided sign would be 33 square feet per elevation.

No exposed pipe or structural supports are permitted. All pipe or supports must be covered in material complimentary to the building architectural components.

All free standing signs shall incorporate a landscaped pad area equal to the square footage area of the sign.

E104.4 MONUMENT SIGNAGE

One monument sign per public entrance will be allowed.

Monument sign may not exceed 6 feet in height and may be backlit. Size is drawn from the linear building frontage from which the elevation is on, and area subtracted from allowed wall signage.

Monument sign may be no closer than 25 feet to adjacent roadway pavement.

Secondary signage will be allowed as monument sign.

END OF APPENDIX E

APPENDIX F GROUND TRANSPORTATION

SECTION F101 - SIGNAGE (TERMINAL BUILDING LOCATIONS ONLY)

F101.1 PRIMARY IDENTIFICATION SIGNS:

All signs will be located on the back wall of the Tenant's space. Signs mounted to or placed upon the service counter are not allowed. Signage allowed at these locations will be as follows:

- A. Located on back wall
- B. Sign shall contain Tenant logo only, maximum 24 inches high
- C. Sign may be internally illuminated.
- D. All signs to align with top of door frame.

F101.2 SECONDARY IDENTIFICATION SIGNS:

All signs shall be located on the back wall of the Tenant's space. Signs mounted to or placed upon the service counter are not allowed. Signage allowed at these locations will be as follows:

- A. This category includes promotional, advisory, regulatory, informational, notification and all approved non-primary identification type signs.
- B. This category may not be used to increase the size or impact of the primary identification sign.
- C. Signs may not be internally illuminated.
- D. Signs may be located atop queuing stanchions. These signs are limited to queuing information only and shall not exceed 24 square inches, and shall not be sized or located as to interfere with pedestrian traffic; these signs must remain within the designed queuing area assigned for each tenant; these signs may be double sided.
- E. Maximum letter height for secondary signs shall be 2 inches.
- F. Signs may be utilized for approved messages only at counters as further detailed
- G. All secondary messages must occur on the back wall within the 2'-0" Sign Band.

END OF APPENDIX F