



SAN ANTONIO AIRPORT SYSTEM

BIM Standards Manual

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TABLE OF CONTENTS

INTRODUCTION	8
SAT BIM VISION AND GOALS	8
REVISION HISTORY	9
FILE FORMATS AND SOFTWARE TOOLS	10
REFERENCE DOCUMENTS	10
Industry Reference Documents	10
BIM Reference Documents	11
FAA Reference Documents	11
SAAS Standards	11
TERMS AND ACRONYMS	11
REVIT SETUP	14
SAAS BIM TOOLBOX	14
MODEL ONTOLOGY	14
OWNERSHIP	14
SAT TEMPLATE FILES	14
Revit Project Files	15
AutoCAD Project Files	15
PHASING	15
WORKSETS	15
PROJECT INFORMATION	16
MODEL VIEWS	16
View Counts	16
View Naming	16
Browser Organization	17
SHEETS	17
Titleblocks	17
Sheet Numbering	17
Level 1 Discipline Designators	17
Level 2 Discipline Designators List	18
Sheet Parameters	23
Browser Organization	24
Sheet Lists	24

DESIGN OPTIONS.....	24
SHARED COORDINATES.....	24
MODEL LEVELS	25
MODELING STANDARDS	26
INTRODUCTION	26
MODEL GRANULARITY	26
MODEL ACCURACY AND TOLERANCES.....	26
TAGGING	26
CONTENT AND FAMILIES.....	26
Content Quality.....	26
Family Library.....	26
Family Naming	27
In-Place Families	27
Generic Models.....	27
Model Groups	27
SYSTEMS AND CONNECTIVITY.....	27
ROOMS, SPACES, AND DOORS	27
Room and Space Placement	27
Room and Space Numbering	28
Door Numbering	28
ANNOTATIONS	29
Text Styles	29
Dimensions.....	29
Keynotes and Sheet Notes	29
Line Styles	29
BIM DATA AND PARAMETERS.....	31
BIM LEVELS OF INTENSITY.....	31
SHARED PARAMETERS	31
ASSET IDENTIFICATION	31
ASSET DATA.....	32
Asset Schedules.....	33
GIS DATA	33
BEST PRACTICES FOR MODELING	34

REFERENCES	34
Model References	34
Linked Models	34
CAD Files	34
Point Clouds	34
ROOM/SPACE BOUNDING PROPERTIES.....	34
MODEL GROUPS.....	34
REVIEW AND ADDRESS WARNINGS	35
QUALITY CONTROL.....	35
BIM EXECUTION PLANNING	35
General BxP Requirements	35
BIM Roles/Responsibilities.....	36
BxP Content and Development by Project Phase	37
Level of Development (LOD)	37
Model Progression Matrix (MPM)	39
Model Element General Requirements	39
BxP Change Management	43
MODEL AUDITS	43
Design Team Responsibilities.....	43
SAAS Model Audit	44
CLASH DETECTION.....	44
Clash Detection During Design.....	44
Clash Detection During Construction.....	45
BIM DELIVERABLES.....	46
DRAWING DELIVERABLES.....	46
ELECTRONIC DELIVERABLES	46
DELIVERABLES SCHEDULE	46
30% DESIGN DELIVERABLE	46
60% DESIGN DELIVERABLE	47
90% CONSTRUCTION DOCUMENTS DELIVERABLE.....	47
100% CONSTRUCTION DOCUMENTS DELIVERABLE.....	48
BID DOCUMENTS	48
PROJECT TERMINATION AND CLOSEOUT	48

Commissioning.....	48
Record Models.....	49
APPENDIX A – PROJECT ORGANIZATION	50
AIRPORT CODES	50
BUILDING SITES.....	50
Appendix B – Standard Sheet Lists.....	58
General Sheet List	58
Structural Sheet List.....	58
Architectural Sheet List.....	59
Interiors Sheet List	62
Equipment Sheet List	62
Fire Protection Sheet List.....	63
Plumbing Sheet List.....	64
Mechanical Sheet List	65
Electrical Sheet List	67
Telecommunications Sheet List	69
Other Disciplines Sheet List.....	70

LIST OF TABLES

Table 1 - Acronyms and Abbreviations	11
Table 2 – Terms.....	12
Table 3 - Level 1 Discipline Designators List.....	17
Table 4 - Level 2 Discipline Designators List.....	18
Table 5: SAAS Coordinate System	24
Table 6 - SAAS Level Datums.....	25
Table 7 - NCS Line Weights	29
Table 8 - NCS Screened Line Types	30
Table 9 - Asset Data - 90% Design.....	32
Table 10 - Asset Data - Construction.....	33
Table 11 - Airport Codes	50
Table 12 - Building Sites	50
Table 13 - General Sheet List	58
Table 14 - Structural Sheet List	58
Table 15 - Architectural Sheet List	59
Table 16 - Interiors Sheet List	62
Table 17 - Equipment Sheet List	62
Table 18 - Fire Protection Sheet List	63
Table 19 - Plumbing Sheet List.....	64
Table 20 - Mechanical Sheet List.....	65
Table 21 - Electrical Sheet List	67
Table 22 - Telecommunications Sheet List	69
Table 23 - Other Disciplines Sheet List.....	70

LIST OF FIGURES

Figure 1 - 3D-4D BIM Applications, GSA BIM Guide 01	9
Figure 2 - Sheet Numbering.....	17
Figure 3 - Room and Space Numbering Convention.....	28
Figure 4 - Door Numbering Convention.....	28

INTRODUCTION

Building Information Modeling (BIM) is a process which provides value to San Antonio Airport System (SAAS) programs and projects by supporting coordination and collaboration from the earliest stages of planning through commissioning and operations and maintenance (O&M). Whether validating the accuracy of design data or facilitating the exchange of information, BIM can be used to provide an enhanced understanding of design integration and how assets will function throughout their lifecycle.

This document is intended for external service providers (design, construction, commissioning) supplying BIM data to SAAS, as well as internal SAAS executives and project managers. The purpose of this document is to implement BIM technology efficiently during projects administered by SAAS. It describes the expectations, requirements, and standards related to BIM including roles, responsibilities, and procedures for stakeholders participating in a SAAS program or project. The procedures are designed to enforce commonality amongst data required throughout the lifecycle of SAAS facilities and ensure compatibility with other systems in use by SAAS.

SAT BIM VISION AND GOALS

SAAS includes various departments and stakeholders throughout the organization which benefit from BIM during design, construction, project closeout, and activation. Each of these groups need different sets of information and use the information in unique ways. With these various needs, one objective of this Standard is to clarify each group's expectations, use cases, and specific format requirements. This will enable the project design and construction teams and all BIM stakeholders to prepare for and deliver information to SAAS in an efficient manner and in a usable format.

The following is a list of SAAS BIM objectives by function:

PLANNING

- Space Planning and Analysis
- Geographic Information Systems (GIS) data input management

BUSINESS AND PROPERTY MANAGEMENT

- Tenant / Leasing contracts

ASSET MANAGEMENT

BIM data will be integrated into SAAS's Facilities Enterprise Asset Management System (EAMS) for use in the following:

- Preventative maintenance
- Corrective maintenance
- Scheduled inspections

FINANCE AND PROCUREMENT

- Pay application justification
- Change Order clarification

SECURITY

- Spatial location and “views” of all cameras and security access readers
- Inventory and mapping of security equipment

GIS

- Spatial location and information of infrastructure assets
- Integration with the OnBase digital document management system
- Assimilation into enterprise GIS Airport Spatial Information System (ASIS)

SAAS expects BIM processes to be implemented on all projects to the broadest extent possible. The extent and details of BIM use on a specific project are to be determined and documented within the project BIM Execution Plan (BxP). Potential BIM uses include:

- | | | |
|-----------------------------|-----------------------------|---------------------------------|
| • Record Modeling | • Design Authoring | • Building Performance Analysis |
| • Asset Management | • Design Reviews | • Programming |
| • Space Management | • Code Validation | • Site Analysis |
| • 3D Control and Planning | • Building Systems Analysis | • Cost Estimation |
| • 4D Control and Planning | • Building Sustainability | • Existing Conditions Modeling |
| • Site Utilization Planning | | |

Technology	Project Area		Improvements in:
3D Laser Scanning	• As-built Information	• As-Constructed Information	<ul style="list-style-type: none"> • Quality • Accuracy • Coordination • Efficiency
3D Geometric Models	<ul style="list-style-type: none"> • Site • Architectural • Structural 	<ul style="list-style-type: none"> • MEP • Fabrication/Construction Tolerance 	
Design and Construction Coordination	• Coordination between disciplines	• Clash Detection	
4D Models	<ul style="list-style-type: none"> • Project Phasing • Tenant Phasing 	<ul style="list-style-type: none"> • Construction Sequencing • Traffic Studies 	
BIM Models	<ul style="list-style-type: none"> • Site • Architectural <ul style="list-style-type: none"> – Space – Zone/Circulation 	<ul style="list-style-type: none"> • Structural • Mechanical • Equipment Information • Maintenance Schedules 	
BIM-analysis Applications	<ul style="list-style-type: none"> • Program/Asset Management • GIS • Energy Analysis • CFD Analysis 	<ul style="list-style-type: none"> • Acoustic • Cost Estimating • Equipment Inventory • Facility Management 	

Figure 1 - 3D-4D BIM Applications, GSA BIM Guide 01

REVISION HISTORY

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FILE FORMATS AND SOFTWARE TOOLS

In general, the scope of work is to create a technically accurate and highly detailed BIM to include the following systems as appropriate to the project: architectural, structural, IT/ communications, facility management, security, lighting, signage, mechanical (HVAC), electrical, plumbing, fire protection, fire alarm, passenger boarding bridges (PBBs), and baggage handling system (BHS). SAAS supports the use of the following platforms for project development:

- Autodesk Revit*
- Autodesk Civil 3D
- Autodesk Navisworks

*Based on the backward compatibility issues of the Revit-based applications, please make sure to check which version of the software is currently being used by SAAS. All models shall be developed in accordance with the most current version of the SAAS BIM standards and should be compatible with the current approved version of software.

The use of BIM software other than those listed above for authoring purposes (model development) is subject to the approval of SAAS. All consultants and sub-consultants are required to create a BIM-authored model and produce 2D construction documents natively using Autodesk Revit or Civil 3D.

REFERENCE DOCUMENTS

Additional design criteria and/or standards are contained within the following documents:

Industry Reference Documents

- Uniformat 2010 - an arrangement of construction information based on physical parts of a facility called functional elements, otherwise known as systems and assemblies
- CSI MasterFormat - the architecture, engineering, and construction (AEC) industry's gold standard for organizing and communicating specifications and work results for construction projects
- BOMA 2018 for Gross Areas: Standard Methods of Measurement (ANSI/BOMA Z65.3-2018) – provides a comprehensive and consistent methodology for measuring all building types while presenting the data in various ways that are useful to stakeholders of any given property
- National CAD Standards (Version 6) - streamlines and simplifies the exchange of building design and construction data from project development throughout the life of a facility.
- NBIMS-US V3 - provides consensus-based standards through referencing existing standards, documenting information exchanges and delivering best business practices for the entire built environment
- Real Property Inventory Requirements: Department of Defense Guide for Segmenting Types of Linear Structures - The Real Property Inventory Requirements (RPIR), published January 2005, established a transformed real property accountability business process and data standards required to manage real property assets throughout their lifecycle. The Guide for Segmenting Types of Linear Structures outlines business rules for sound, consistent segmentation of linear structures.

BIM Reference Documents

- BIM Forum Level of Development Specification 2021 - a reference that enables practitioners in the AEC Industry to specify and articulate with a high level of clarity the content and reliability of Building Information Models (BIMs) at various stages in the design and construction process.
- ISO 55000:2014 – asset management; overview, principles, and terminology
- ISO 19650-1:2018 - Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 1: Concepts and principles
- ISO 19650-2:2018 - Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 2: Delivery phase of the assets

FAA Reference Documents

- AC 150/5070-6B – Airport Master Plans: Provides guidance for the preparation of airport master plans that range in size and function from small general aviation to large commercial service facilities.
- AC 160/5360-13A – Airport Terminal Planning: Provides information on the process of planning airport passenger terminal facilities
- AC 150/5370-10H – Standard Specifications for Construction of Airports: The standard specifications contained in this advisory circular (AC) relate to materials and methods used for construction on airports.

SAAS Standards

- Design Standards Manual
- CAD Standards Manual
- Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE)
- ESD Green Building Checklist
- Sustainable Airport Manual (SAASM)

TERMS AND ACRONYMS

The terms and acronyms outlined in this section are used throughout this BIM standards document:

Table 1 - Acronyms and Abbreviations

Acronym	Meaning
AIA	American Institute of Architects
AIM	Airport Infrastructure Management
AIR	Asset Information Requirement
AGIS	Airports Geographic Information System
AOA	Air Operations Area
APM	Automated People Mover
ASIS	Airport Spatial Information System
BHS	Baggage Handling System
BIM	Building Information Modeling/Model
BMPs	Best Management Practices

BxP	BIM Execution Plan
CAD	Computer Aided Design
CDE	Common Data Environment
CIM	Civil Information Modeling
CM	Construction Manager
CMAR	Construction Manager at Risk
DB	Design-Build
eALP	Electronic Airport Layout Plan
EAMS	Enterprise Asset Management System
FAA	Federal Aviation Administration
FFE	Furniture, Fixtures, and Equipment
GIS	Geographic Information Systems
GSE	Gate Support Equipment
HVAC	Heating, Ventilation, and Air Conditioning
SAAS	San Antonio Airport System
SAT	San Antonio International Airport
SSF	Stinson Municipal Airport
I-BIM	Infrastructure BIM
ICT	Information and Communications
IFC	Interchangeable Foundation Class
LoD	Level of Development
MPM	Model Progression Matrix
NCS	National CAD Standards
O&M	Operations and Maintenance
PBB	Passenger Boarding Bridge
PM	Project Manager
PMT	Program Management Team
QA/QC	Quality Assurance/Quality Control
TSA	Transportation Security Administration

Table 2 – Terms

Term	Definition
Asset	Item, thing, or entity that has potential or actual value to an organization
As-Built Model	Prepared by the contractor to show on-site changes to the original construction models
Attributes	Characteristics of a geographic feature (manufactures or natural) described by numbers, characters, and images, typically stored in a tabular format, and linked to a geographic feature by an identifier within some form of database (GIS, CAD, BIM). A column in a database table can contain an attribute field covering the same type of data class for a variety of geographically disperse features.
BIM Execution Planning	A process that allows consensus decisions to be made by all shareholders regarding the project BIM Process.
BIM Execution Plan	The record document and attachments of the BIM Project Execution Planning process.

Common Data Environment	Agreed source of information for any given project or asset for collecting, managing, and disseminating each information container through a managed process (ISO)
Delivery Phase	Part of the life cycle, during which an asset is designed, constructed, and commissioned
Delivery Team	Lead appointed part and their appointed parties
Design Model	Created and developed by the Design Consultant to develop the project design
Construction Model	Created by the Contractor from the design model to develop and fulfill construction requirements
Federation/Federate	Creation of a composite information model from separate information containers
Level of Development	The degree to which the elements geometry and attached information has been thought through the degree to which project team members may rely on the information when using the model. This base definition is further defined in the “Level of Development Specification,” by BIM Forum.
Model Element	A portion of a model representing a major component, assembly, or construction part.
Operational Phase	Part of the life cycle during which an asset is used, operated, and maintained
Project Information	Information produced for, or utilized in a specific project
Record Model	Prepared by the design consultant from the design model to reflect on-site changes which the contractor noted in the as-built model
Responsibility Matrix	Chart that describes the participation by various functions in completing tasks or

REVIT SETUP

SAAS BIM TOOLBOX

The SAAS BIM toolbox is comprised of resources and content to assist with project creation and development. The content in this toolkit is the baseline from which all projects shall begin. The SAAS BIM Toolbox includes the following:

- SAAS BIM Standards Manual
- [SAAS Standard Titleblocks](#)
- [SAAS Shared Parameters](#)
- [BxP Model Element Progression Matrix](#)
- [AutoCAD Plot Styles Table](#)
- References
 - SAT CAD Standards Manual

MODEL ONTOLOGY

FEDERATED MODEL

A federated model is composed of multiple linked models. This may include architectural, structural, and mechanical, electrical, and plumbing information of a building.

SINGLE-DISCIPLINE MODEL

A single-discipline model contains elements and data related to one discipline, such as architectural, structural, mechanical, electrical, plumbing, or fire protection information.

SYSTEM

Within any model, information is generally categorized into systems by function. Properties of this system might include name (e.g. First Floor Supply Air), classification (e.g. mechanical), and components.

TYPE AND COMPONENT

A system is composed of model elements called components, which can be categorized by type. In any model, there can be a single instance (i.e. a single component) of a component type or multiple instances (i.e. multiple components) of the same type.

OWNERSHIP

SAAS holds ownership of the BIM. This includes, but is not limited to, Revit families (system-based and/or component-based) and any other content submitted as part of a model itself.

SAT TEMPLATE FILES

COMING SOON

NAMING CONVENTIONS

This section outlines SAAS naming conventions for project file naming. These names are structured to ensure consistency among different disciplines within a project.

Revit Project Files

Revit model file names are comprised of five mandatory elements, which must be used in the correct sequence.

<Project Code>_<Facility Code>_<Building Abbreviation>_<Project Name>_<Discipline Designator>.rvt

1. The first element is the unique project code assigned by SAAS
2. The second element is the facility code, assigned by SAAS, and found in the [Airport Codes Table](#).
3. The third element is the building abbreviation, found in the [Building Sites Table](#).
4. The fourth element is the project name, assigned by SAAS
5. The fifth element is the discipline designator, found in the [Level 1 Discipline Designators Table](#)

AutoCAD Project Files

AutoCAD file names shall conform to the NCS Uniform Drawing system. Please reference the SAT CAD Standards Manual for all CAD file naming conventions.

PHASING

Phases shall be documented in the BxP and must be uniform across all models within a project. In general, most projects will have an “Existing” phase and a “New” phase for new construction or renovation work. If a project has multiple phases or packages, the model shall accurately reflect those phases or packages in the phase naming. Demolition shall not be a phase, as all demolition work should occur on the phase immediately succeeding the action of demolition. Examples of phase naming:

- Existing
- Alterations and New Construction
- Phase 1 – New Construction
- Phase 2 – New Construction

WORKSETS

Worksharing with worksets allows multiple people to work on a single project in Revit. All SAAS projects are required to have worksharing enabled. User-Created Worksets should follow the guidelines described below:

- A. Shared Levels and Grids
A coordination workset for consistency between linked models. Levels and grids exist on this workset so they can be turned off by other disciplines. This workset should also contain scope boxes, reference planes, and match lines if utilized.
- B. Link_X –
These are linked models from other disciplines. Create one workset per linked model discipline. (Example: Link_M [Mechanical Model], Link_S – [Structural Model])
- C. X_Site –
This workset shall contain all elements related to site (Example: A_Site [Architectural Site Elements], E_Site [Electrical Site Elements])
- D. Link_CAD
This workset is for linked DWG files. “Visible in All Views” should be unchecked. Use the Visibility Graphics settings as needed per view to turn on the workset and isolate the necessary individual drawing(s) using the Imported Categories tab.

- E. Link_Point Cloud
This workset is for linked Point Clouds. “Visible in All Views” should be unchecked. Use the Visibility Graphics settings as needed per view to turn on the workset.
- F. X_For Rendering
This workset shall contain elements related to rendering only. “Visible in All Views” should be unchecked. (Example: A_For Rendering)
- G. X_User Defined
These are up to each discipline based on need.

X at the beginning of each workset stands for the [discipline identifier](#). It is important to work under proper worksets as the project design develops. Worksets are designed to allow each discipline to work independently based on discipline-specific needs while maximizing collaboration efficiencies. Use the following rules to help determine proper setup and usage of user-created worksets:

1. Do not use worksets like AutoCAD layers.
2. Do not use worksets to control visibility of elements. Instead use Visibility Graphics, filters, and view templates.
3. Consider model performance for larger projects. Worksets may be used to divide a model into more manageable areas to increase performance. Using worksets to divide a model into key plan areas or zones is permitted in this case.

The use of redundant worksets, such as “Workset 1”, or worksets with usernames be avoided. Workset 1 should be renamed to the applicable discipline (example: Architecture).

PROJECT INFORMATION

Project Information shall be completed as it becomes available including Author, Project Issue Date, Project Status, Project Address, Project Name, and Project Number.

MODEL VIEWS

View Counts

The number of views in a project shall be kept to a minimum. Delete unused views regularly and for all model submittals to SAAS.

View Naming

All views created for documentation purposes (placed on sheets) shall be named descriptively using ALL CAPS. Views created for informational or working purposes may be named using lowercase letters.

Documentation View Examples:

- OVERALL FIRST FLOOR PLAN
- EAST BUILDING ELEVATION

Working View Examples:

- First Floor Working/Coordination Plan
- East Elevation - Working

Browser Organization

COMING SOON

SHEETS

Consistent sheet identification is necessary for management of the information that is reusable from project to project, as well as the effective management of the graphical and non-graphical information related to a construction document set.

Titleblocks

Standard titleblocks are provided in the SAAS BIM Toolbox. SAAS's standard titleblock sizes are 24"x36" and 30"x42". Other titleblock sizes may be permitted but shall be discussed on a project-by-project basis with SAAS. The titleblock family shall not be modified without approval from SAAS. All consultants and subconsultants on a project shall use the same titleblock.

Sheet Numbering

LEVEL 1 DISCIPLINE DESIGNATOR+LEVEL 2 DISCIPLINE DESIGNATOR (Optional)+SHEET TYPE DESIGNATOR+2-DIGIT SHEET SEQUENCE NUMBER (01-99)+AREA DESIGNATOR (A-Z) (Optional)

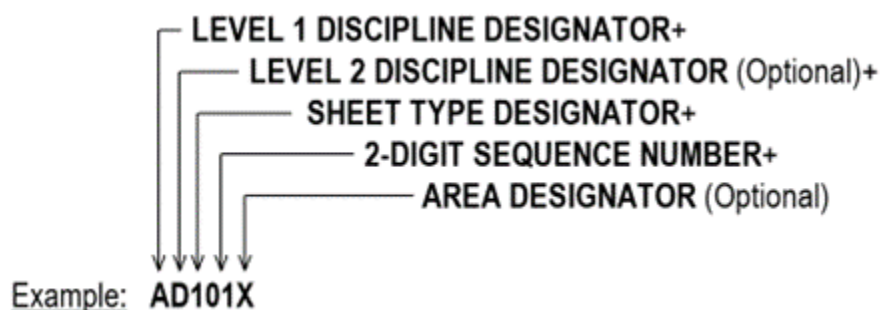


Figure 2 - Sheet Numbering

1. Please refer to the Level 1 Discipline Designators Table for the full list of Level 1 Discipline Designators.
2. Please refer to the Level 2 Discipline Designators Table for the full list of Level 2 Discipline Designators.
3. Please refer to Sheet Parameters for the full list of Sheet Type Designators.
4. Use a "00" Sheet Sequence Number on Parent Plans, Basements and Parking Garage levels.
5. Sheet names must be written using upper case letter font only.

Level 1 Discipline Designators

Table 3 - Level 1 Discipline Designators List

LEVEL 1 DISCIPLINE DESIGNATORS TABLE	
DESIGNATOR	DESCRIPTION
G	GENERAL
H	HAZARDOUS MATERIALS
V	SURVEY / MAPPING

B	GEOTECHNICAL
C	CIVIL
L	LANDSCAPE
S	STRUCTURAL
A	ARCHITECTURAL
I	INTERIORS
Q	EQUIPMENT
F	FIRE PROTECTION
P	PLUMBING
D	PROCESS
M	MECHANICAL
E	ELECTRICAL
W	DISTRIBUTED ENERGY
T	TELECOMMUNICATIONS
R	RESOURCE
X	OTHER DISCIPLINES
Z	CONTRACTOR/SHOP DRAWINGS
O	OPERATIONS

Level 2 Discipline Designators List

Table 4 - Level 2 Discipline Designators List

LEVEL 2 DISCIPLINE DESIGNATORS TABLE	
GENERAL	
DESIGNATOR	DESCRIPTION
GI	GENERAL INFORMATION
GC	GENERAL CONTRACT
GR	GENERAL RESOURCE
GJ	USER DEFINED
GK	USER DEFINED
HAZARDOUS MATERIALS	
DESIGNATOR	DESCRIPTION
HA	HAZARDOUS MATERIALS – ASBESTOS
HC	HAZARDOUS MATERIALS – CHEMICALS
HL	HAZARDOUS MATERIALS – LEAD
HP	HAZARDOUS MATERIALS – PCB
HR	HAZARDOUS MATERIALS – REFRIGERANTS
HJ	USER DEFINED
HK	USER DEFINED
SURVEY/MAPPING	

DESIGNATOR	DESCRIPTION
VA	SURVEY/MAPPING AERIAL
VB	SURVEY/MAPPING BOUNDARY
VC	SURVEY/MAPPING COMPUTATED POINTS
VF	SURVEY/MAPPING FIELD
VI	SURVEY/MAPPING DIGITAL
VN	SURVEY/MAPPING NODE POINTS
VS	SURVEY/MAPPING STAKED POINTS
VU	SURVEY/MAPPING COMBINED UTILITIES
VL	SURVEY/MAPPING LAND
VJ	USER DEFINED
VK	USER DEFINED
GEOTECHNICAL	
DESIGNATOR	DESCRIPTION
BJ	USER DEFINED
BK	USER DEFINED
CIVIL	
DESIGNATOR	DESCRIPTION
CD	CIVIL DEMOLITION
CS	CIVIL SITE
CG	CIVIL GRADING
CT	CIVIL TRANSPORTATION
CP	CIVIL PAVING
CU	CIVIL UTILITIES
CI	CIVIL IMPROVEMENTS
CN	CIVIL NODES
CJ	USER DEFINED
CK	USER DEFINED
LANDSCAPE	
DESIGNATOR	DESCRIPTION
LD	LANDSCAPE DEMOLITION
LS	LANDSCAPE SITE
LG	LANDSCAPE GRADING
LI	LANDSCAPE IRRIGATION
LL	LANDSCAPE LIGHTING
LP	LANDSCAPE PLANTING
LR	LANDSCAPE RELOCATION
LJ	USER DEFINED
LK	USER DEFINED
STRUCTURAL	

DESIGNATOR	DESCRIPTION
SD	STRUCTURAL DEMOLITION
SS	STRUCTURAL SITE
SB	STRUCTURAL SUBSTRUCTURE
SF	STRUCTURAL FRAMING
SJ	USER DEFINED
SK	USER DEFINED
ARCHITECTURAL	
DESIGNATOR	DESCRIPTION
AD	ARCHITECTURAL DEMOLITION
AS	ARCHITECTURAL SITE
AE	ARCHITECTURAL ELEMENTS
AI	ARCHITECTURAL INTERIORS
AG	ARCHITECTURAL GRAPHICS
AF	ARCHITECTURAL FINISHES
AJ	USER DEFINED
AK	USER DEFINED
INTERIORS	
DESIGNATOR	DESCRIPTION
ID	INTERIOR DEMOLITION
IN	INTERIOR DESIGN
IF	INTERIOR FURNISHINGS
IG	INTERIOR GRAPHICS
IJ	USER DEFINED
IK	USER DEFINED
EQUIPMENT	
DESIGNATOR	DESCRIPTION
QA	EQUIPMENT – ATHLETIC
QB	EQUIPMENT – BANK
QC	EQUIPMENT – DRY CLEANING
QD	EQUIPMENT – DETENTION
QE	EQUIPMENT – EDUCATIONAL
QF	EQUIPMENT – FOOD SERVICE
QH	EQUIPMENT – HOSPITAL
QL	EQUIPMENT – LABORATORY
QM	EQUIPMENT – ATHLETIC
QP	EQUIPMENT – PARKING LOT
QR	EQUIPMENT – RETAIL
QS	EQUIPMENT – SITE
QT	EQUIPMENT – THEATRICAL
QV	EQUIPMENT – VIDEO / PHOTOGRAPHIC

QY	EQUIPMENT – SECURITY
QJ	USER DEFINED
QK	USER DEFINED
FIRE PROTECTION	
DESIGNATOR	DESCRIPTION
FA	FIRE PROTECTION DETECTION AND ALARM
FX	FIRE PROTECTION SUPPRESSION
FJ	USER DEFINED
FK	USER DEFINED
PLUMBING	
DESIGNATOR	DESCRIPTION
PD	PLUMBING DEMOLITION
PS	PLUMBING SITE
PL	PLUMBING FIXTURES
PP	PLUMBING PIPING
PQ	PLUMBING EQUIPMENT
PJ	USER DEFINED
PK	USER DEFINED
PROCESS	
DESIGNATOR	DESCRIPTION
DD	PROCESS DEMOLITION
DS	PROCESS SITE
DA	PROCESS AIRS
DC	PROCESS CHEMICALS
DE	PROCESS ELECTRICAL
DG	PROCESS GASES
DI	PROCESS INSTRUMENTATION
DL	PROCESS LIQUIDS
DM	PROCESS HPM GASES
DO	PROCESS OIL
DP	PROCESS PIPING
DQ	PROCESS EQUIPMENT
DR	PROCESS DRAINS AND RECLAIMS
DV	PROCESS VACUUM
DW	PROCESS WATERS
DX	PROCESS EXHAUST
DY	PROCESS SLURRY
DJ	USER DEFINED
DK	USER DEFINED
MECHANICAL	

DESIGNATOR	DESCRIPTION
MD	MECHANICAL DEMOLITION
MS	MECHANICAL SITE
MH	MECHANICAL HVAC
MI	MECHANICAL INSTRUMENTATION
MP	MECHANICAL PIPING
MJ	USER DEFINED
MK	USER DEFINED
ELECTRICAL	
DESIGNATOR	DESCRIPTION
ED	ELECTRICAL DEMOLITION
ES	ELECTRICAL SITE
EI	ELECTRICAL INSTRUMENTATION
EL	ELECTRICAL LIGHTING
EP	ELECTRICAL POWER
ET	ELECTRICAL TELECOMMUNICATIONS
EY	ELECTRICAL AUXILIARY SYSTEMS
EJ	USER DEFINED
EK	USER DEFINED
DISTRIBUTED ENERGY	
DESIGNATOR	DESCRIPTION
WD	DISTRIBUTED ENERGY DEMOLITION
WC	DISTRIBUTED ENERGY CIVIL
WI	DISTRIBUTED ENERGY INTERCONNECTION
WP	DISTRIBUTED ENERGY POWER
WS	DISTRIBUTED ENERGY STRUCTURAL
WT	DISTRIBUTED ENERGY TELECOMMUNICATIONS
WY	DISTRIBUTED ENERGY AUXILIARY SYSTEMS
WJ	USER DEFINED
WK	USER DEFINED
TELECOMMUNICATIONS	
DESIGNATOR	DESCRIPTION
TA	TELECOMMUNICATIONS AUDIO VISUAL
TC	TELECOMMUNICATIONS CLOCK AND PROGRAM
TI	TELECOMMUNICATIONS INTERCOM
TM	TELECOMMUNICATIONS MONITORING
TN	TELECOMMUNICATIONS DATA NETWORKS
TT	TELECOMMUNICATIONS TELEPHONE
TY	TELECOMMUNICATIONS SECURITY
TJ	USER DEFINED
TK	USER DEFINED

RESOURCE	
DESIGNATOR	DESCRIPTION
RC	RESOURCE CIVIL
RS	RESOURCE STRUCTURAL
RA	RESOURCE ARCHITECTURAL
RM	RESOURCE MECHANICAL
RE	RESOURCE ELECTRICAL
RR	RESOURCE REAL ESTATE
RJ	USER DEFINED
RK	USER DEFINED
OTHER DISCIPLINES	
DESIGNATOR	DESCRIPTION
XJ	USER DEFINED
XK	USER DEFINED
CONTRACTOR / SHOP DRAWINGS	
DESIGNATOR	DESCRIPTION
ZJ	USER DEFINED
ZK	USER DEFINED
OPERATIONS	
DESIGNATOR	DESCRIPTION
OJ	USER DEFINED
OK	USER DEFINED

Sheet Parameters

Sheets are to be organized within the Project Browser and sheet index by Sheet Sorting Code (Discipline Identifier listed below), and then by Sheet Sub-Sorting Code (Sheet Series code listed below), then by Sheet Number. These parameters shall be acquired from the SAAS shared parameters file.

The project-wide sheet index will be compiled by the architect based on these parameters:

Sheet Sorting Code:

- | | | |
|-------------------------|------------------------|------------------------------|
| 00. General | 08. Interiors | 16. Telecommunications |
| 01. Hazardous Materials | 09. Equipment | 17. Resource |
| 02. Survey/Mapping | 10. Fire Protection | 18. Other Disciplines |
| 03. Geotechnical | 11. Plumbing | 19. Contractor/Shop Drawings |
| 04. Civil | 12. Process | 20. Operations |
| 05. Landscape | 13. Mechanical | |
| 06. Structural | 14. Electrical | |
| 07. Architectural | 15. Distributed Energy | |

Sheet Sub-Sorting Code:

- 000. General (Symbols, Legends, Notes, Etc.)
- 100. Plans (Horizontal Views and combination Plan and Profile)

- 200. Elevations & Profiles (Vertical Views)
- 300. Sections (Sectional Views, Cross Sections, etc.)
- 400. Large Scale Views (Scaled up reproductions of Plans, Elevations, or Sections that are not details)
- 500. Details
- 600. Schedules and Diagrams
- 700. User Defined (Reflected Ceiling Plans)
- 800. User Defined
- 900. 3D Representations (Isometrics, Perspectives, Photographs)

Browser Organization

The same parameters used to drive the sheet index (Sheet Sorting Code and Sheet Sub-Sorting Code) shall be used to drive the browser organization. Sheets will be sorted in the Project Browser by discipline using the “Sheet Sorting Code” parameter and ordered using the “Sheet Sub-Sorting Code”.

Sheet Lists

Standard sheet lists shall comply with the latest release of the National CAD Standards. Sheet sets shall be created in accordance with the proposed [Standard Sheet Lists](#) in the appendix of this manual.

DESIGN OPTIONS

Design options in Revit allow for the creation of multiple alternative designs in a single building model. Multiple options for different parts of a model can be created, all within the same project.

If design options are used, preserve design options only if they are applicable to the project. Unless specifically approved by SAAS, all design options shall be eliminated from the model prior to submission at 100%.

SHARED COORDINATES

All SAAS projects shall be geo-referenced to a horizontal and vertical coordinate system, which must be set up by the project team at the start of a project. The current coordinate system in use at SAT is NAD-83. A base site file, including the established coordinate system, will be provided to the project team by SAAS. All models shall acquire the shared coordinates from the site file and maintain these coordinates throughout the project. When exporting geometry, such as for coordination, it shall always be done by shared coordinates unless specifically requested otherwise.

Table 5: SAAS Coordinate System

SAAS Coordinate System				
Projected Coordinate System:	NAD-83 (2011)	Grid Coordinates		
SPCS Zone:	TX83-SCF			
Linear Unit:	US Foot			
Scale Factor:	0.99986925			
PACS and SACS		Easting	Northing	Elevation
PACS (Survey Point):	SAT A	X: 2137960.51'	Y: 13741753.86'	Z: 778.6467367'
SACS:	SAT B	X: 2140495.63'	Y: 13741324.94	Z: 769.3390125'
SACS:	SAT C	X: 2134921.38'	Y: 13742039.49'	Z: 791.4190208'

MODEL LEVELS

Levels are to be restricted to occupiable floor levels and shall be labeled numerically and in ALL CAPS (e.g., LEVEL 01, LEVEL 02, LEVEL 03).

When using levels that exist in models provided by SAAS, match the naming of those levels. If surveyed elevations do not match elevation of existing levels in the model, contact SAAS for direction.

Levels shall not be created for intermediate spaces such as landings, or for the delineation of upper limits such as ceilings or top of parapet. Reference Planes may be used for such conditions. New levels must be approved by SAAS.

Table 6 - SAAS Level Datums

SAAS LEVEL DATUMS			
Building	Level Name	Project Level	Survey Level
TERMINAL A	BASEMENT LEVEL	0' – 0"	771' – 2"
	ARRIVALS LEVEL	14' – 6"	785' – 8"
	INTERNATIONAL MEZZANINE	16' – 10"	788' – 0"
	DEPARTURES LEVEL	33' – 10"	805' – 0"
TERMINAL B	BASEMENT LEVEL	0' – 0"	771' – 2"
	ARRIVALS LEVEL	17' – 0"	788' – 2"
	DEPARTURES LEVEL	34' – 0"	805' – 2"
	BRIDGE/MECHANICAL	50' – 4"	821' – 6"
CONRAC	TUNNEL	0' – 0"	777' – 0"
	PPG LEVEL 1	2' – 6"	779' – 6"
	PPG LEVEL 2	17' – 6"	794' – 6"
	RAC LEVEL 3	32' – 6"	809' – 6"
	CSB LEVEL 4	44' – 6"	821' – 6"
	RAC LEVEL 5	58' – 0"	835' – 0"
	RAC LEVEL 6	71' – 0"	849' – 0"
	RAC LEVEL 7	85' – 0"	863' -0"

MODELING STANDARDS

INTRODUCTION

This section establishes the basic modeling standards required to develop a project using BIM technology for SAAS.

MODEL GRANULARITY

Modeling every component in a project is not a common practice supported by SAAS BIM Standards. It is recognized that the design model itself may not represent the exact actual elements that are installed. Two exceptions are:

1. The objects with a significant impact on cost estimates, which should be modeled with proper estimation parameters included.
2. The objects crucial for operation of the building, which should be modeled with proper parameters associated.

MODEL ACCURACY AND TOLERANCES

Models shall include all appropriate dimensioning as needed for design intent, analysis, coordination, and construction. Design documents shall be accurate to +/- 1/8" of design size and location unless otherwise dictated by an element in question needing a higher level of accuracy for design, coordination, or placement. Shop drawings models shall be accurate to +/- 1/16" of actual size and location unless otherwise dictated by an element in question needing a higher level of accuracy for design, coordination, or placement. As-built models shall be accurate to +/- 1/8" of actual size and location.

TAGGING

All modeled elements must be identified using Revit's built-in tagging functionality. Use of the Text tool to identify rooms, doors, walls, pipes, ducts, equipment, etc., is not permitted.

CONTENT AND FAMILIES

Content Quality

Poor content creation or development practices can negatively affect model performance. All families and model content shall comply with the following, at a minimum:

- Family naming shall follow the [conventions](#) specified in this manual
- Family types shall be created to minimize the number of families in a project. Family types shall be named appropriately, and properties shall be defined to comply with the requirements specific in this manual
- Flexible (parametric) families shall be checked to verify integrity and functionality
- Model geometry shall be developed fully within the native platform (no imported geometry unless otherwise approved by SAAS)
- File size shall be kept to a minimum. All excess geometry, imported files, materials, and unused elements shall be purged from the family.

Family Library

COMING SOON

Family Naming

The following naming format shall be used for Revit Families:

<CSI Identifier>_<Asset Type>_<Short Description>_<Category Abbreviation>

1. CSI Identifier: 6 Digits
 - a. Masterspec CSI 2018 format 6-digit identifier with no spaces (ex: Hollow Metal Door and Frame = 081113)

For families in which multiple spec sections apply, just the first two characters may be used. For example, a wood door (081416) and hollow metal frame (081113) may use 080000.

2. Asset Type: For families which classify as a SAAS asset, this field is required and shall indicate the Asset Abbreviation from the SAAS BIM Facilities and Asset Data Spreadsheet under the Asset Types Tab. Asset Abbreviation shall be in ALL CAPS. For families not classified as assets, this field shall be omitted.
3. Short Description: General Description of the family. Refrain from using dimensions, manufacturer, or model numbers in the family name. (ex: 081113_DOOR_Interior HM)
4. Category Abbreviation: For families which do not classify as an SAAS family, this field is required and shall indicate the Revit Category Abbreviation from the SAAS BIM Facilities and Asset Data Spreadsheet. Category Abbreviation shall be in ALL CAPS. (ex: Annotation families (ANNO), Detail Components (DETL), or some Generic Models (GENM))

In-Place Families

In-Place Families are not permitted except with prior approval from SAAS. In-Place families, when permitted, must be named descriptively using the SAT family naming convention.

Generic Models

Generic Model category families are not permitted except with prior approval from SAAS. Generic Model family types are permissible for elements that must be “cuttable”, such as Escalators and Passenger Boarding Bridges, which cannot be achieved with other family types which are not “cuttable”.

Model Groups

Model groups should be avoided. All model groups must be ungrouped for model submissions to SAAS at 90% and later.

SYSTEMS AND CONNECTIVITY

All designed elements shall be included as fully connected and closed systems using the built-in system tools and system browser in Autodesk Revit. All parts of a system must also have the System parameter populated with the correct system identifier.

ROOMS, SPACES, AND DOORS

Room and Space Placement

All areas within the project design scope shall have rooms in the architecture and structure models and spaces in other discipline models. Rooms and spaces shall be placed, enclosed, and numbered per SAAS

standards. Disciplines other than architecture and MEP are permitted to forego placing rooms or spaces in their model if they meet two conditions:

1. Rooms or spaces in a linked model must be shown, tagged, and identified intelligently in model views and on sheets (no plain text in place of room tags).
2. Assets in that discipline's model must have the appropriate asset parameters filled out completely and accurately.

All rooms must identify, at a minimum: Number, Name, Department, and Occupancy Type.

Room and Space Numbering

Room and door identification must be coordinated to ensure compatibility with all SAAS facilities and operations applications. SAAS will provide applicable room numbers to the project team. Where renovations occur, reuse the room number if the room configuration does not change. Proposed room numbers for new construction projects must be reviewed and approved by SAAS no later than the 60% model submission.

Room and space numbering conventions are as follows:

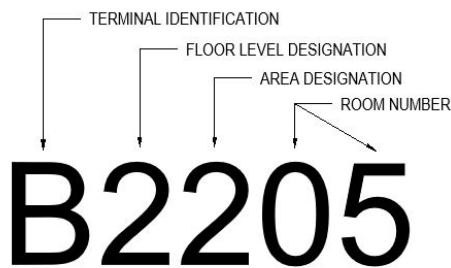


Figure 3 - Room and Space Numbering Convention

Door Numbering

Door numbering conventions are comprised of alphanumeric and numerical characters and shall include the number of the room being entered. Each door is assigned a decimal value to indicate the door number for the room. In the case of multiple doors in a room, the decimal value shall increase sequentially in a clockwise rotation from the primary entry door.

Door numbering conventions are as follows:

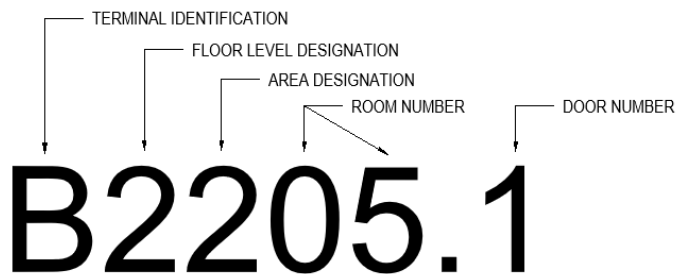


Figure 4 - Door Numbering Convention

ANNOTATIONS

Text Styles

All text shall be in the Arial font. SAAS recommends the following text styles:

1. General Text/Notes: 3/32" – this is the default text type and should be used in all cases except for in the succeeding types.
2. Headings: 1/4" – used for any headings such as on legends, schedules, or sheet notes
3. Sub-headings: 1/8" – sub-headings to be hierarchically beneath headings

If needed, authoring firms are permitted to create other text styles. The following guidelines must be followed:

1. The naming convention should follow: <Size>-<Style (if applicable)> (Ex: Arial 3/32 – Bold)
2. The font shall always be Arial, UPPERCASE, and easily readable on half-size prints.
3. Minimum font size shall be such that all text remains visible when plotted at half size
4. Font width factor shall not be less than 0.8"
5. Text shall be black, not gray scaled or colored

Dimensions

Authoring firms are permitted to create their own dimension styles. The following guidelines must be followed:

1. The naming convention should follow: <Size>-<Rounding> (Ex: 3/32" Linear – 1/8" Rounding)
2. The font shall always be Arial, UPPERCASE, and easily readable on half-size prints.
3. All graphic settings and units of measure must be in accordance with the most current National CAD/BIM Standards.

Keynotes and Sheet Notes

The following rules have been established by SAAS for sheet notes and keynotes:

1. When placing notes on the drawing, place the note directly next to the noted object using complete text within the drawing area.
2. Revit Keynote functionality may be used for sheet notation where appropriate. If the full text of a note does not fit within the drawing area, it shall become either a Reference Keynote or a Sheet Keynote.
 - a. Sheet Keynotes are more generic and may use Revit Keynote tools or Generic Annotations and Note Block schedules.
 - b. Reference Keynotes refer to specific specification sections within the project and utilize the Revit Keynote tools.

Line Styles

2D line types aid in the embellishment of 3D views and the creation of 2D details. All line styles used for design documentation shall follow National CAD Standards. The nine standard NCS line weights are as follows:

Table 7 - NCS Line Weights














STANDARD DRAFTING LINES TABLE		
NAME	LINEWEIGHT	APPEARANCE
01 EXTRA FINE	0.0050"	
02 FINE	0.0070"	
03 THIN	0.0100"	
04 MEDIUM	0.0140"	
05 WIDE	0.0200"	
06 EXTRA WIDE	0.0280"	
07 XX WIDE	0.0400"	
08 XXX WIDE	0.0550"	
09 XXXX WIDE	0.0790"	

Table 8 - NCS Screened Line Types

STANDARD DRAFTING LINES TABLE – SCREENED LINE COLORS			
NCS COLOR	RGB VALUES	SCREENING	APPEARANCE
250	102, 102, 102	60	
251	128, 128, 128	50	
252	153, 153, 153	40	
253	179, 179, 179	30	

BIM DATA AND PARAMETERS

This section outlines the required BIM data to ensure compatibility with all SAAS facilities, operations, and GIS applications. The SAAS Aviation Department has introduced the BIM process as a way for all project stakeholders (internal and external) to create, receive, and utilize asset data in a consistent format. This will allow the efficient exchange of information among stakeholders and systems and streamline future uses such as an Enterprise Asset Management Program.

BIM LEVELS OF INTENSITY

The SAAS Aviation Department does not intend to require full compliance with all Facilities and Asset Data standards. The requirements of this section will be determined on a project-by-project basis by the SAAS Aviation Projects and Facilities Departments. Projects will be categorized into Levels of Intensity by the SAAS Aviation Project Manager. The assigned Level of Intensity will determine which BIM Data/Parameters are required for a project. Levels of Intensity include:

- Level 1: Level 1 BIM will require compliance with Facilities Design/Location Data and minimal asset data. Specific Level 1 BIM Facilities and Asset Data requirements are outlined below, as well as in the SAAS BIM Facilities and Asset Data spreadsheet provided in the SAAS BIM Toolbox.
- Level 2: Level 2 BIM will require compliance with all Level 1 BIM requirements, as well as all Design Authored and Construction/Commissioning Asset Data. Specific Level 2 BIM Facilities and Asset Data requirements are outlined below, as well as in the SAAS BIM Facilities and Asset Data spreadsheet provided in the SAAS BIM Toolbox.

SHARED PARAMETERS

SAAS maintains a master shared parameter file for all projects. The shared parameters file is included in the SAAS BIM Toolbox. These parameters are essential for transferring data to asset and facilities management programs. The SAAS BIM Facilities and Asset Data spreadsheet, provided in the SAAS BIM Toolbox, contains data to assist project teams in the population of required asset and facilities management data.

ASSET IDENTIFICATION

Proper identification and delivery of asset data is essential to SAAS asset management and facilities management programs. At the 60% deliverable, all assets must be identified. A list of SAAS assets can be found in Appendix B – Asset Register. In general, asset types include, but are not limited to:

- Doors
- Baggage Handling Equipment
- Electrical Equipment
- Elevators, Escalators, Lifts, Moving Walkways
- Fire Protection Equipment
- Fire Alarm Equipment
- Light Fixtures
- Mechanical Equipment
- Passenger Boarding Bridges
- Plumbing Equipment
- Plumbing Fixtures

- Security Equipment
- Sprinklers

ASSET DATA

Asset data is created throughout the project lifecycle. If new data is added, the creator is also responsible for validating existing data, if applicable, for the asset. At the 90% deliverable, all assets (existing and new) within the project scope must have the following parameters populated:

Table 9 - Asset Data - 90% Design

Asset Data Type	Revit Parameter	Description	SAAS BIM INTENSITY LEVEL
ASSET	SAAS Asset (Shared)	Yes-No parameter indication the element is an asset.	Level 1
LOCATION	Facility (Shared)	Facility Code from the Facilities Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Site (Shared)	Site Name from the Building Sites Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Building Name (Shared)	Building Name from the Building Sites Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Building Number (Shared)	Building Number from the Building Sites Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Department (Built-in)	Department Name from the Departments Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Location ID (Shared)	Building Abbreviation from the Building Sites Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 1
	Level (Built-in)	Level within the Building	Level 1
	Room Name (Built-in)	Revit Native: SAAS Room Name. Obtain official naming conventions from SAAS.	Level 1
	Room Number (Built-in)	Revit Native: SAAS Room Number Designation. Obtain official numbering from SAAS.	Level 1
ASSEMBLY CODE	Assembly Code (Built-in)	Uniformat II Classification Code Levels 1, 2, and 3	Level 2

SYSTEM	Primary System (Shared)	System Abbreviation from the Systems Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 2
	Sub-System (Shared)	Sub-system Abbreviation from the Systems Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 2
ASSET TYPE	Asset Type (Shared)	Asset Abbreviation from the Asset Types Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 2
DESCRIPTION	Description (Built-in)	Object Description from the Asset Types Tab (SAAS BIM Facilities and Asset Data Spreadsheet)	Level 2
MARK	Mark (Built-in)	Individual Equipment Identification Number	Level 2
ASSET IDENTIFICATION	Asset ID (Shared)	Facility-Location ID-Asset Type-Mark	Level 2

As the project moves into construction, the contractor or installer shall be responsible for validating existing data, as well as populating the following asset data:

Table 10 - Asset Data - Construction

Asset Data Type	Revit Parameter	Description	SAAS BIM Intensity Level
MANUFACTURER	Manufacturer (Built-in)	Manufacturer Name	Level 2
MODEL	Model (Built-in)	Model Number	Level 2
LOCATOR IDENTIFICATION	Facilities Code (Shared)	Facilities QR Code	Level 2
SERIAL NUMBER	Serial Number (Shared)	Number Captured from Equipment	Level 2
INSTALLATION	Install Date (Shared)	Installation Date	Level 2
WARRANTY	Warranty End Date (Shared)	Warranty End Date	Level 2
VALUE	Equipment Value (Shared)	Expected Equipment Value	Level 2

Asset Schedules
COMING SOON

GIS DATA
COMING SOON

BEST PRACTICES FOR MODELING

This section covers the minimum requirements for model management to ensure overall performance is maximized and consistency is obtained.

REFERENCES

Model References

Models shall always be referenced using the origin-to-origin positioning option with the project base point located at the origin [ex: (0,0,0) to (0,0,0)]. All models within a project must utilize the same base point. The project base point shall be located at a prominent location within the design project area, such as a building corner or gridline intersection.

All references must have relative paths, rather than absolute paths. References to objects in other models and links to external documents must also use relative paths.

Linked Models

All discipline models shall have the other discipline models for the project linked, pinned, and assigned to the appropriate discipline workset. Linked models shall be initially linked using the Origin-to-Origin positioning option. Additionally, linked Revit models shall be linked using the Overlay reference type. Remove any unused links throughout the model development as appropriate and before each deliverable.

CAD Files

If CAD files are required for the development of a project, CAD files must be linked and placed on the correct Link_CAD workset. CAD files must never be imported or exploded. Remove any unused CAD files throughout the model development as appropriate and before each deliverable.

Point Clouds

If point clouds are utilized during the development of a project, they must be linked and placed on the correct Link_Point Cloud workset. Remove any unused point clouds throughout the model development as appropriate and before each deliverable.

ROOM/SPACE BOUNDING PROPERTIES

The Architectural model shall include rooms defining accurate net square footage and net volume, and holding data for the room finish schedule for including room names and numbers. Architectural rooms shall be created on the correct level, with accurate upper and lower limit boundaries. Room separation lines shall not be used to define rooms where room bounding walls are in place.

In the MEP models, Spaces shall be created in all areas to achieve accurate heating and cooling loads and to properly locate assets. Space naming and numbering shall match architectural room naming and numbering where applicable. For models which do not require Spaces, Room Bounding properties shall be enabled for the linked Architectural model.

MODEL GROUPS

Groups in Revit can be very helpful for specific uses, but the incorrect use of Revit groups can create excessive file size and increase the opportunity for model corruption. Within reason, families should be used over groups. Model groups shall never include linework to represent a floor plan element or detail

component. If model groups are used during model development, they must be ungrouped and purged from the model prior to each model submission to SAAS.

REVIEW AND ADDRESS WARNINGS

Warnings shall be reviewed and addressed as they occur in a model. Warnings can have a significant adverse effect on model performance. As a rule, there shall be no more than 2 warnings per MB (ex: A 200 MB model shall not exceed 400 warnings total). Some warnings may be more critical than others. Priority shall be given to warnings related to model-based elements with impacts on the following:

- Calculations - Rooms/Spaces/areas & wall/boundary errors (can have a direct impact on performance)
- Accuracy - Duplication (multiple elements in the same place)
- Documentation - Type Marks/Marks/tagging accuracy

QUALITY CONTROL

BIM EXECUTION PLANNING

SAAS requires that a BIM Execution Plan be created for each project. The BxP shall be adapted to support the contract delivery method and specifically outline BIM protocols, workflows, and role responsibilities of each party.

General BxP Requirements

To develop the BxP, a BIM planning team should be assembled within 30 days of Notice to Proceed for Design Services. This team should consist of representatives from all the primary project team members including SAAS, PMT, Design Consultants, Contractors, and major specialty contractors. It is very important for SAAS, as well as all primary team members, be included to fully support the planning process. The planning team should conduct a series of planning meetings to develop the project BxP. On most projects, a minimum of three (3) meetings will be needed to develop the overall BxP.

For the initial goal-setting meeting(s), key decision-makers should be represented from each of the organizations so that the overall goals and vision for implementation of the project are clearly defined for further planning initiatives. Once the initial goal setting is complete, then the detailed implementation processes and information exchanges can be developed and implemented by the lead BIM coordinators for each of the parties. Finally, a meeting shall be held with the SAAS project manager to achieve approval of the developed BxP.

The BIM Execution Plan shall include the following (at a minimum):

- A. BxP Overview
- B. Project Information
- C. Key Project Contacts
- D. Project Goals/BIM Uses
- E. Organizational Roles/Staffing
- F. BIM Process Design
- G. BIM Information Exchanges
- H. BIM and Facility Data Requirements
- I. Collaboration Procedures

- J. Quality Control
- K. Technological Infrastructure Needs
- L. Model Structure
- M. Project Deliverables
- N. Delivery Strategy/Contract
- O. BxP Change Management Plan

BIM Roles/Responsibilities

PROJECT BIM MANAGER

Individual assigned by the Design Team to serve as the main point of contact between the Design Team, Construction Team, and Owner for all BIM related issues. This individual shall have sufficient BIM experience required for the size and complexity of the project and shall have relevant proficiency in the BIM authoring and coordination software. Responsibilities include the following:

- Ensure development and compliance with the approved BxP
- Schedule the BIM Kick-off Meeting
- Provide meeting agenda and minutes for all BIM Meetings
- Schedule, coordinate, and facilitate BIM technical meetings between the Design and Construction Team, design disciplines, and project stakeholders
- Coordinate team file management
- Coordinate the setup of a shared file server
- Assemble composite design model for coordination meetings
- Facilitate use of composite design models in design coordination/clash detection meetings and provide detection reports by the identification and resolution of all hard and soft collisions
- Ensure that BIMs are used appropriately to test design requirements/criteria for functionality
- Assume responsibility for the proper classification of all spaces and equipment in the model to facilitate downstream use for facility management
- Determine the project BIM geo-reference point(s), and assure all technical discipline models are properly referenced
- Primary interface between the Design and Construction Teams and Owner for BIM data and file transfers as required at each design phase or otherwise
- Coordinate with the Construction Team BIM Manager to assure the creation of proper BIM final deliverables

LEAD BIM COORDINATORS

All major design technical disciplines/trades (Architecture, Structural, MEP, Interior design, etc.) shall assign an individual to the role of lead BIM Coordinator to coordinate their work with the entire Design/Construction Team. These individuals shall have the relevant BIM experience required by the complexity of the project and shall have, as a minimum, the following responsibilities for their discipline:

- Coordinate technical discipline BIM development, standards, data requirements, etc. as required with the Design Team BIM Manager
- Lead the technical requirements needed for BIM documentation and analysis for their discipline/trade
- Coordinate clash detection and resolution activities
- Coordinate trade items into the BIMs

DESIGN STAFF

Design Staff are responsible for the following BIM related issues:

- Coordinate design work with other disciplines
- Author discipline-specific BIM Content, as required by Contract as well as this Manual and the approved BxP for the Project. Naturally, this includes both geometric and non-geometric information.
- Ensure BIM supports the process of Design Review.
- Archive Discipline Model(s)

CONTRACTOR BIM MANAGER

The Contractor BIM Manager is responsible for the following BIM related issues:

- Ensure development and compliance with the approved BxP
- Lead BIM implementation and oversight for the contractor and subs
- Coordinate with the Design Team BIM Manager to assure the creation of proper BIM final deliverables

BxP Content and Development by Project Phase

Design

During the design phase of a project, the project team grows to include the design professionals who will make some of the decisions that inform the BxP. Specifically, this is when software tools for design authoring, analysis, and quality control will be selected and documented in the BxP. In addition, the BxP should document how models will be separated and linked as a federated model, if applicable for the project. The BxP shall indicate what processes and tools will be used for model quality control and for asset data checking.

The BxP shall be updated as the design progresses to reflect changes to the BIM processes that are in use and to document any model-specific information that a downstream user would require to use the final design deliverables.

Construction

During the construction phase of a project, the project team expands to include the builder, construction manager, and commissioning agent. This phase of the project is when the specific information about actual installed construction will be gathered and verified. The BxP must clearly delineate the roles and responsibilities, tools, processes, and schedule that will be used to gather and verify the accuracy of the information being added to the BIM, including the information being added to the asset dataset.

At each milestone submission, the BIM and asset data information in the BxP shall be updated to reflect changes to the BIM processes that are in use and to document any model-specific information that a downstream user would require to use the final as-built deliverables.

Level of Development (LOD)

Model Development Spec

LOD 100

LOD 100 requires a low level of detail - roughly comparable to the level of detail traditionally associated with planning or conceptual design in a project. At this level, information is at its most primitive. For

example, the building may be sited and roughly sized, and there may be a basic site layout. LOD 100 information is sufficient for performing some very preliminary types of engineering analysis that support high-level decision making about basic design. Examples include whole building energy analysis, building orientation daylight studies, conceptual cost estimates based on cost per square foot, and preliminary whole site construction phasing.

LOD 100 information may come in different formats because it can include engineering calculations, analysis data, and 2D drawings or sketches. LOD 100 information can be represented in a 3D model using generic “placeholder” objects that may or may not be accurately sized, dimensioned, or placed in the model. This would provide a framework for organizing other types of non-graphical or non-geometric information. When possible, LOD 100 information should be in a format that will facilitate use of a BIM tool for further detail and development.

LOD 200

At LOD 200, generic model elements show approximate dimensions, quantities, locations, attributes, and relationships. There is sufficient information to inform design development and to answer high-level specific questions about spaces and systems. However, LOD 200 information is not necessarily sufficient for detailed analyses.

LOD 300

At LOD 300, specific model elements are fully defined in the BIM with exact dimensions, quantities, locations, attributes, and relationships. LOD 300 information should include all information that a design team would specify for a complete, biddable design. LOD 300 information is sufficient for an estimator or contractor to provide a cost estimate for a project or to plan for the purchase, construction, and/or installation of specific building elements.

LOD 350

Model elements at LOD 350 are defined with relationships within overall building systems, while model elements at LOD 300 are fully defined as specific, independent elements, assemblies, and systems.

LOD 400

LOD 400 provides sufficient detail in the BIM for fabrication and assembly. The information required for fabrication models is not necessarily the same as the information needed for design or as-built models, so LOD 400 models may have more or less information than LOD 300 or LOD 500 models, depending on the discipline. SAAS does not specify information requirements for LOD 400; this is at the discretion of the contractor and fabricator.

LOD 500

LOD 500 fully defines the actual conditions of the facility. It is a virtual representation of the actual current conditions of the facility. As-built documentation of a facility, intended to provide a snapshot in time of the actual facility condition at the conclusion of a project, must be at LOD 500. Project team members, including the architect/engineer (A/E) of record, the construction manager (CM), and the general contractor (GC), must collaborate to incorporate design changes and field changes in a complete, coordinated as-built submittal that accurately represents the facility condition at the conclusion of the project.

Information related to operations and maintenance requirements must be provided in digital format as links to digital documents (such as operations and maintenance manuals) or as object data attributes in the BIM database. An LOD 500 as-built submittal does not necessarily contain all the LOD 300 and LOD 400 information; it may incorporate a combination of LOD 300 and LOD 400 information for some building elements with the addition of commissioning test results and other field inspection data. Models need not show excessive fabrication level detailing. For example, ductwork must be sized and located correctly as installed but need not have flanges modeled.

Model Progression Matrix (MPM)

For every project, the project team must create a custom model progression matrix (MPM) to indicate the LOD for various types of data and disciplines, as required by project needs, and the MPM must be a part of the project BxP. For example, a tenant fit-out project (refers to activities making a commercial tenant interior space suitable for occupation) may need higher LOD information about architectural finishes early in the project but require only a low LOD for mechanical information throughout the project, whereas a mechanical upgrade project may require low LOD architectural information even at project close-out but will require higher LOD mechanical information at early design stages. A general LOD can be defined for a specific project deliverable. The project MPM must clearly delineate which spaces, disciplines, or equipment are at a higher or lower LOD than the general LOD set for the deliverable. For example, a partial building modernization may require LOD 200 for the Design Development deliverable but may indicate that areas outside the specific area of work may remain at LOD 100 throughout the design and construction process.

Model Element General Requirements

SAAS has general and specific requirements for model elements. Note that this section discusses general information. In some cases, this may apply to the design team, construction team, third-party quality managers, or any combination thereof. The exact timing and responsibilities for providing information in the BIM should be documented clearly in the BxP.

Existing Conditions

The project team shall model all existing conditions necessary to explain the extent of the construction work for alterations, additions, and new projects that interface with existing facilities. The extent of modeling beyond the affected areas and the level of information to be included will be determined based on specific project needs. These requirements may be stated in the project program or discussed during the project kickoff meeting. The BxP shall define the agreed upon scope of the modeling effort.

All project teams shall verify with SAAS the existence and accuracy of as-built models.

Existing models provided by SAAS shall be used for reference only.

Architecture/Interiors

The following stipulations will be used for architectural model elements:

- All exterior walls, doors, windows, steps, railings, and roofs will be modeled.
- All interior walls, including non-rated walls separating rooms, will be modeled.
- Risers and sloped floors will be modeled.

- Interior doors and windows will be modeled to the extent that the walls they are associated with are included in the model. King studs and headers shall be modeled as part of the wall adjacent to the window or door family.
- All interior ceilings, soffits, stairs, and railings will be modeled.
- Walls, ceilings, and soffits will be modeled as the overall thickness including elevation changes and termination points. Overall thickness is to be determined by their actual total composite assemblies.
- Doors, windows, leaves, and frames will be modeled
- The overall extent of stairs and loading docks will be modeled including railings.
- Light fixtures will be modeled to the overall height, width, depth, and access through the interstitial space.
- Elevator shaft clear space will be modeled to the worst-case clear width, depth, and height only from preferred possible vendors. Nominal elevator cab size and overrun shall be modeled including the hoist beam.
- Escalators and moving sidewalks shall be modeled to the worst-case clear width, depth, and height only from preferred possible vendors.
- Signage shall be limited to wayfinding and room Identification required by code.
- Fixed furnishings including systems furniture will be modeled. Equipment will be modeled. Casework, including upper and lower cabinets will be modeled. Wall coverings, wall base, and trim carpentry need not be modeled.

Structural Engineering

The following stipulations will be used for structural model elements:

- All cast-in-place concrete, including all penetrations and openings identified in the Construction Documents, will be modeled. Slab camber will not be modeled. Chamfers at corners will not be modeled (but will be detailed).
- Edges of all slabs and penetrations of structural systems will be accurately located in the model.
- All primary and secondary structural steel members will be modeled, including standard steel member sizes, gusset plates, braces, kickers, and equipment supports. Reinforcing steel and imbeds will not be modeled.
- Metal, wood, and concrete decks shall be modeled as the overall thickness of the slab. Ribs in metal decks will not be modeled.
- Bolts, clip angles, etc. will not be modeled.
- Miscellaneous metals such as elevator hoist beams, rails, and intermediate rail support steel for the elevator will be modeled.
- Identify reinforcing or penetration “no-fly zones” as applicable.

HVAC

The following stipulations will be used for Heating, Ventilation, and Air Conditioning (HVAC) model elements:

- All ducts and air handling equipment will be modeled. Ducts will be modeled to the outside face dimension of the flanges/insulation.
- Hangers and supports need only be modeled for large equipment or where required for coordination.

- Equipment will be modeled to its overall height, width and depth. Equipment access zones will be modeled as solids.
- Any piping associated with the mechanical equipment will be modeled. Pipes will be modeled to the outside diameter of the pipe or pipe insulation (whichever is greater).
- Piping 2-inches or greater or smaller piping if in ganged runs will be modeled.
- Any electrical associated with HVAC will be modeled per the electrical modeling requirements as outlined in the Electrical Section.
- The intent of this model is to show the ductwork and piping, etc. in as true a representation as possible of the actual condition at construction completion. Specific dimensional location of ductwork and piping may not be included in the construction documents. To the extent that location can be determined from the construction documents, the model will reflect that location.
- Identify “no-fly zones” with solid transparent (50%) placeholder clearance object for: access issues, code issues, and/or constructability.

Plumbing

The following stipulations will be used for plumbing model elements:

- Piping 2-inches or greater or smaller piping if in ganged runs will be modeled.
- Plumbing piping and gas piping, including specialty gas, and equipment will be modeled. Pipes will be modeled to the outside diameter of the pipe or the pipe insulation, whichever is greater.
- Pipe slope will be incorporated in the model.
- All plumbing equipment will be modeled to its overall height, width, and depth.
- All valves and clean outs will be modeled along with all access to valves/cleanouts.
- Any access zone requirements will be modeled as solids.

Electrical

The following stipulations will be used for electrical model elements:

- Conduits 1 ½ -inches or greater, or smaller conduits if in ganged runs will be modeled.
- Ganged runs shall be modeled.
- Cable tray, access zones, and equipment to be included in the model.
- Light fixture locations and space requirements to be included in the model.
- All power feeds to equipment and all switchgear will be modeled.
- Consider modeling switches and outlets where coordination with architectural FFE or interior elevations is a concern.
- Any access zones requirements will be modeled as solids.
- “No-fly zones” above electrical panels shall be modeled as solids.

Fire Protection (Sprinkler and Alarm)

The following stipulations will be used for fire protection model components:

- All components 2-inches or greater of the fire protection system will be modeled. This includes all piping, valves, fire pump, and sprinkler heads.
- Any access zone requirements will be modeled as solids.
- “No-fly zones” above control panels shall be modeled as solids.
- Fire alarm modeling requirements shall follow the requirements of the Electrical section.

Security/IT

The following stipulations will be used for Security/IT model elements:

- Electrical/wiring associated with Security and IT Systems are to be modeled per the electrical modeling requirements as outlined in the Electrical Section.
- At a minimum, device locations are to be designated by installation points in 3D space.
- Equipment and server racks are to be modeled as solid objects to their overall height, width, and depth.
- “No-fly zones” above control panels shall be modeled as solids.

BHS

The BHS shall be modeled in 3D and provide the clear area and dimensions of equipment. Model equipment to suitable level of detail to ensure the required clear space for the baggage envelope, egress and other rights-of-way are maintained throughout the system.

- Equipment will be modeled to its overall height, width, and depth, including motors.
- Model the required clear space for the baggage envelope as solid above the bag line surface.
- Any access zone (work areas for pulling motors) requirements will be modeled as solids i.e. clearances in front of motor control centers.
- Model the preliminary support structure for the BHS; Floor, wall, or ceiling mounted supports.
- Model any catwalks necessary for the BHS.
- Coordinate clear width and height egress paths.
- Coordinate all floor and wall openings, concrete curbs, and security/fire doors required for the BHS.
- “No-fly zones” above control panels shall be modeled as solids.

Civil/Site

- Utilities within the project boundary of the footprint are to be modeled in three dimensions and accurately represented with family elements. The Civil/Site model may be modeled in *Civil3D*.
- Utility trench excavation surfaces.
- Excavation lift models of proposed daily progress of mass excavation and utility trenches.
- Shored walls/surfaces.
- Mechanically Stabilized Earth (MSE) walls.
- Bridge soffit surfaces – Pre-camber and post-camber.
- Bridge bents.
- Bridge top deck surfaces – Pre-camber and post-camber.
- Bridge hinge keys.
- Electroliner bases on bridges.
- Bridge barriers.
- Piping / Conduit / Duct banks: Model all proposed installations including but not limited too; piping, joints, sump basins, storage tanks, and free draining material wraps or bedding around piping. Pipe networks “part properties” shall be populated with relevant geometric and analytic data pertaining to; “Geometry, Resize Behavior, Hydraulic Properties, and Part Data”.
- Excavation and vertical underground elements: Model all temporary and permanent shoring, and areas of excavation including affected lay back areas, with appropriate sloped surfaces.

- Horizontal site development: Model all temporary roadways required for potential phasing including but not limited to; perimeter barriers (jersey barriers, k-rails), paving surface relocations, storm drainage requirements, snow storage areas, and first-responders site and perimeter access roadways.
- Site areas of impact: Provide model elements to indicate areas of influence. Sterile area boundaries, Air Operations Area (AOA) boundaries, or stakeholder access zones.
- Civil 3D deliverable files should be accompanied by a LandXML 1.2 file of alignments /profiles / surfaces and points, and an Interchangeable Foundation Class (IFC) format if possible.

BxP Change Management

Any regular change in the BxP will follow these procedures:

1. A meeting must be held to approve changes to the BxP
2. Before the meeting, all parties will prepare documents proposing changes within the BxP. SAAS, Design Consultants, and the Contractor will send their list of changes to the other parties no later than ten (10) days before the date of the meeting. The project BIM manager will prepare the meeting agenda no later than seven (7) days before the date of the meeting and transmit the agenda to the other parties.
3. Meeting minutes containing approved BxP changes will be prepared by the project BIM Manager and be published to the other parties. The project BIM Manager then updates the BxP accordingly.

Incidental changes requested by the Design Consultant or Contractor follows these procedures:

1. The change requester will issue a document addressing the change(s) and the reason(s) for that change.
2. If the request is not critical, the project BIM Manager applies the change into the BxP and publishes the versioned document to all parties. Otherwise, the project BIM Manager requests a meeting to discuss the change.
3. The meeting will held no later than seven (7) days after the request. The change requestor documents the results into meeting minutes and the project BIM Manager updates the BxP accordingly.

MODEL AUDITS

Design Team Responsibilities

All models shall be reviewed by the design team and project BIM Manager at regular intervals and prior to all model submissions for compliance with SAAS standards. These model reviews shall check for the following:

1. If SAAS-specific parameters are correctly applied to the appropriate model elements
2. If SAAS-specific parameters are populated appropriately using the correct format
3. If models comply with SAAS CAD/BIM Standards
4. If models comply with SAAS Graphic Standards
5. If models comply with current BxP requirements

File Size

Model file sizes shall be kept to a minimum. The following steps shall be regularly taken to help control model file size:

- Run Purge Unused – remove unused families, types, and other content as appropriate prior to submittals. The design team shall use discretion whether this is a manual process or if it can be done using the Purge Unused tool.
- Remove Unused Links – removed unused links (CAD, Revit, Point Clouds, PDFs, etc) throughout model development as appropriate and before all deliverables
- Remove Unused Views – throughout model development as appropriate and before all deliverables
- Remove Design Options - throughout model development as appropriate and before all deliverables

SAAS Model Audit

SAAS will require access to current production models and files at each deliverable to monitor progress and standards compliance. All models shall be reviewed by the creator and project BIM Manager for compliance with SAAS standards prior to submission to SAAS for review. SAAS will perform model audits against SAAS BIM Standards. These checks will confirm:

1. If SAAS-specific parameters are correctly applied to the appropriate model elements
2. If SAAS-specific parameters are populated appropriately using the correct format
3. If models comply with SAAS CAD/BIM Standards
4. If models comply with SAAS Graphic Standards
5. If models comply with current BxP requirements

CLASH DETECTION

Clash detection is an important part of the quality control process for design and construction BIM. Design teams should use clash detection tools to ensure a fully coordinated design within each discipline, across all disciplines, and across all authoring platforms. Construction contractors should use clash detection to ensure that subcontractor work is fully coordinated before field installation begins.

Clashes can be considered “hard” or “soft” clashes. A hard clash is when two (or more) physical objects occupy the same space. An example of a hard clash would be if mechanical ductwork is placed where there is a structural member. Such a clash could be resolved by re-routing the duct, moving the structural member, or creating a space for the duct in the web of the structural member (preferably in the steel shop, rather than in the field). A soft clash is when the positioning of two (or more) objects interferes with necessary clearances, tolerances, or access spaces - for example, if a piece of equipment is placed so that it blocks an access door, does not allow the access door to be opened fully, or takes up the space where a building operator or technician would need to do work.

Clash Detection During Design

The project design team shall manage, coordinate discipline models, and perform clash detection analysis for each project milestone. The design team shall facilitate coordination meetings as necessary to resolve design conflicts and/or coordination issues in a timely manner. Each discipline shall collaborate with other disciplines to resolve clashes outside of coordination meetings. Coordination

meetings shall be held to address difficult areas requiring more detail review and coordination between multiple disciplines. Any changes made during this process shall be properly documented and updated in the design model as necessary. Clash reports shall be created to document clashes and track progress on resolution.

Clash Detection During Construction

Clash detection during construction is primarily a coordination tool. As in design, both hard and soft clashes should be considered during the coordination process. Contractors are required to continue to update the project BIM throughout the construction phase of the project to ensure that complete and accurate facility and asset management information is turned over at project substantial completion.

For BIM-facilitated pre-installation coordination meetings:

- Designate a BIM facilitator for coordination meetings.
- Prior to each meeting, each trade subcontractor shall perform clash detection between their fabrication model or shop drawings and the design BIM. Where there are clashes, the subcontractor shall adjust the fabrication model to conform to contract requirements and submit the updated fabrication model to the BIM facilitator. The subcontractor shall report either of the following circumstances to the BIM facilitator:
 - The subcontractor identifies an issue for which they cannot adjust the fabrication model to conform to contract requirements, or
 - The fabrication model already conforms to contract requirements and the clash is due to other factors.
- Prior to each meeting, each trade subcontractor shall provide their coordinated fabrication model or shop drawings to the BIM facilitator.
- Prior to each meeting, the contractor's BIM facilitator shall perform clash detection on subcontractor fabrication models. Clash Reports shall be distributed to the meeting attendees prior to the meeting start.
- During each meeting, the clash reports shall be reviewed by all meeting attendees jointly. As clashes are resolved, the BIM facilitator or the BIM lead for the affected subcontractor shall update the coordination BIM to reflect the group decision to resolve the clash.

BIM DELIVERABLES

SAAS requires two types of BIM deliverables for each submission milestone: Drawing and Electronic Deliverables. This section describes the requirements for the two types of deliverables. Details of the deliverables shall be outlined in the project BxP.

DRAWING DELIVERABLES

At each submission milestone, project teams shall submit full size PDF files of each sheet. All sheets shall be combined into a single, bookmarked set. PDF drawings shall be printed in black and white (colored logos permitted) and utilize the SAAS standard titleblock. Drawings shall be signed and stamped at milestones as required for permit and contract submittals.

ELECTRONIC DELIVERABLES

At each submission milestone, project teams shall submit all project models in the native file format (.rvt or Civil 3D .dwg). All views and sheets included in the document set must be included in the models. Remove all Working/Coordination Views, unused renderings, user 3D views, and any other unused views or views not on sheets. Remove all design options. Ensure the correct design option has been incorporated into the model by selecting “Accept Primary”, if applicable.

Models shall be fully functional, free of resolvable warnings, and all worksets shall be set to “Non-editable” with no ownership. Requirements for each electronic deliverable are outlined for each milestone submission below.

DELIVERABLES SCHEDULE

30% DESIGN DELIVERABLE

The project team is permitted to use any method to begin the design process but shall be using BIM-authored models by completion of this phase. All information needed to describe the schematic design shall be graphically, numerically, and/or alphanumerically included in and derived from these models.

- A. Data
 - a. Programmatic spaces
 - i. All rooms/spaces in the architectural and MEP BIMs. Rooms/spaces are to be enclosed and bounded appropriately using room-bounding components or room/space separation lines.
 - ii. Programmatic Spaces must be linked to rooms by final submittal of this phase.
 - b. Asset Data – none required, parameters must be present
- B. Sustainability
 - a. Energy Data - As called for by BxP Preliminary Energy modeling data including:
 - i. Detailed electric and fuel rates as defined by the local service provider
 - ii. Building function and occupancy
 - b. Energy Analysis – compliance data per ASHRAE 90.1 – Total Building Performance Model
- C. Clearance – Transparent extrusions of the “Clearance Zone” subcategory of object styles will be built into families to allow visual display of:
 - a. Building code clearances
 - b. Access clearances
 - c. Maintenance clearances

60% DESIGN DELIVERABLE

The project team shall continue development of their BIM. Parametric links shall be maintained within the models to enable automatic generation of all plans, sections, elevations, details, schedules, and 3D views. All information needed to describe the detailed design shall be graphically, numerically, and/or alphanumerically included in and derived from these models only, except for specifications.

Documentation of the models or design documents shall not occur outside of the BIM authoring software.

- A. Data
 - a. Rooms/Spaces - All rooms/spaces in the architectural and MEP BIMs.
 - b. Asset Data – all assets identified, parameters must be present
 - c. Any programming language used to plan, edit, and execute data in or out of Dynamo shall be included. Any coding for data science and programming to automate the BIM processes shall be included and valid in end-product and owner usage.
- B. Sustainability
 - a. Energy Data - As called for by BxP Preliminary Energy modeling data including:
 - i. Detailed electric and fuel rates as defined by the local service provider
 - ii. Building function and occupancy
 - iii. Building Construction Types
 - b. Energy Analysis – compliance data per ASHRAE 90.1 – Total Building Performance Model
- C. Clearance – Transparent extrusions of the “Clearance Zone” subcategory of object styles will be built into families to allow visual display of:
 - a. Building code clearances
 - b. Access clearances
 - c. Maintenance clearances

90% CONSTRUCTION DOCUMENTS DELIVERABLE

The project team shall continue development of the models created in the design development phase. Maintain parametric links within the respective models to enable automatic generation of all plans, sections, elevations, details, schedules, and 3D views. All information needed to describe the execution documents shall be graphically, numerically, and/or alphanumerically included in and derived from these models only. Specifications are not required, but encouraged, to be linked within the models.

- A. Data
 - a. Rooms/Spaces - All rooms/spaces in the architectural and MEP BIMs.
 - b. Asset Data – all assets identified, all parameters required for the design phases must be complete and populated in the correct format
 - c. Any programming language used to plan, edit, and execute data in or out of Dynamo shall be included. Any coding for data science and programming to automate the BIM processes shall be included and valid in end-product and owner usage.
- B. Sustainability
 - a. Energy Data - As called for by BxP Preliminary Energy modeling data including:
 - i. Detailed electric and fuel rates as defined by the local service provider
 - ii. Building function and occupancy
 - iii. Building Construction Types

- b. Energy Analysis – compliance data per ASHRAE 90.1 – Total Building Performance Model
- C. Clearance - Clearances will be built into families to allow visual display of:
 - a. Building code clearances
 - b. Access clearances
 - c. Maintenance clearances

100% CONSTRUCTION DOCUMENTS DELIVERABLE

The project team shall continue development of the models created in the design development phase. Maintain parametric links within the respective models to enable automatic generation of all plans, sections, elevations, details, schedules, and 3D views. All information needed to describe the execution documents shall be graphically, numerically, and/or alphanumerically included in and derived from these models only. Specifications are not required, but encouraged, to be linked within the models.

- A. Data
 - a. Rooms/Spaces - All rooms/spaces in the architectural and MEP BIMs.
 - b. Asset Data – all assets identified, all parameters required for the design phases must be complete and populated in the correct format
 - c. Any programming language used to plan, edit, and execute data in or out of Dynamo shall be included. Any coding for data science and programming to automate the BIM processes shall be included and valid in end-product and owner usage.
- B. Sustainability
 - a. Energy Data - As called for by BxP Preliminary Energy modeling data including:
 - i. Detailed electric and fuel rates as defined by the local service provider
 - ii. Building function and occupancy
 - iii. Building Construction Types
 - b. Energy Analysis – compliance data per ASHRAE 90.1 – Total Building Performance Model
- C. Clearance – Transparent extrusions of the “Clearance Zone” subcategory of object styles will be built into families to allow visual display of:
 - a. Building code clearances
 - b. Access clearances
 - c. Maintenance clearances

BID DOCUMENTS

The project team shall update the models with all addendums, accepted alternates and/or value enhancement proposals.

PROJECT TERMINATION AND CLOSEOUT

The project team shall update their respective models with contractor recorded changes (record documents). Record documents shall be submitted to SAAS in PDF and the native file format (.rvt or Civil 3D .dwg). All required asset data must be complete and verified at this submission.

Commissioning

Commissioning data including but not limited to design intent, performance criteria, and operations data shall be recorded and/or linked to the BIM model as commissioning occurs throughout the project. It shall be the project team’s responsibility to coordinate the information sources and integrate this information into the BIM model for transfer to SAAS at the completion of the project.

Record Models

Record models shall be submitted in .rvt and Civil 3D .dwg format and shall be purged of unused views, sheets, model elements, design options, levels, and other content typically produced throughout the BIM project lifecycle.

Record models shall be modeled to the LoD noted in the MPM with any assets updated to reflect actual location, size, shape, and orientation of installed assets.

- A. Data
 - a. Rooms/Spaces - All rooms/spaces in the architectural and MEP BIMs.
 - b. Asset Data – all assets identified, all parameters required for the design, construction, and commissioning phases must be complete and populated in the correct format
 - c. Any programming language used to plan, edit, and execute data in or out of Dynamo shall be included. Any coding for data science and programming to automate the BIM processes shall be included and valid in end-product and owner usage.
- B. Clearance – Transparent extrusions of the “Clearance Zone” subcategory of object styles will be built into families to allow visual display of:
 - a. Building code clearances
 - b. Access clearances
 - c. Maintenance clearances

APPENDIX A – PROJECT ORGANIZATION

AIRPORT CODES

All SAAS projects are organized by facility using the following airport codes:

Table 11 - Airport Codes

AIRPORT CODES	
FACILITY NAME	FACILITY CODE
San Antonio International Airport	SAT
Stinson Municipal Airport	SSF

BUILDING SITES

Each Airport is organized by Site and Building Number:

Table 12 - Building Sites

BUILDING SITES				
SITE NAME	BUILDING NO.	BUILDING NAME	BUILDING ABBREVIATION	ADDRESS
AARF	1920	FIRE STATION (AARF) #23	AARF1920	SKYPLACE BOULEVARD
AERO SKY	1552	HANGAR / OFFICE	HANG1552	9023 WETMORE ROAD
AERO SKY	1553	HANGAR / OFFICE	HANG1553	9023 WETMORE ROAD
AERO SKY	1800	HANGAR - STORAGE	HANG1800	1850 1ST AVENUE
AERO SKY	1805	OFFICES	OFF1805	2030 1ST AVENUE
AERO SKY	1830	AERO SKY HANGAR 5	HANG1830	2030 1ST AVENUE
AERO SKY LLC		TOOL/PRINT SHOP (SAT #1850)	SHOP1850	2011 1ST
AERO SKY LLC OFFICES		BUILDING #140 (SAT #1805)	BLDG140	2010 1ST
AERO SKY MAINTENANCE		MAINTENANCE HANGAR (BLDG 1800)	MAINT1800	2011 1ST
AERONEV INC.	1140	HANGAR / OFFICE	HANG1140	1101 PAUL WILKINS STREET
AERONEV INC.	1	HANGAR/OFFICE	HANGOFF1	935 PAUL WILKINS STREET
AHR	1260	HANGAR / OFFICE	HANGOFF1260	567 SANDAU ROAD
AHR	1260A	COVERED PARKING / GARAGE	PKG1260A	567 SANDAU ROAD
AIRPORT CAB HOLDING AREA	1	CAB HOLDING AREA	CABHOLD1	TERMINAL DRIVE
AIRPORT MAINTENANCE	1150	STORAGE BUILDING	STOR1150	10223 JOHN SAUNDERS

AIRPORT MAINTENANCE	1151	OFFICE WAREHOUSE	OFF1151	10223 JOHN SAUNDERS
AIRPORT MAINTENANCE	1153	MODULAR OFFICE	MODOFF1153	10223 JOHN SAUNDERS
AIRPORT MAINTENANCE	1155	VEHICLE MAINTENANCE	MAINT1155	10223 JOHN SAUNDERS
AIRPORT MAINTENANCE	2157	GREENHOUSE	GREEN2157	10223 JOHN SAUNDERS
AIT	1830	HANGAR 5	HANG1830	1811 1ST AVENUE
AIT	1833	HANGAR 150 / OFFICE	HANGOFF1833	1900 1ST AVENUE
AIT	1835	HANGAR B	HANG1835	1906 1ST AVENUE
AIT	2836	HANGAR AVIATION 2	HANG2836	1906 1ST AVENUE
ALLIED / NAYAK	1425	HANGAR 1&2, OFFICE & STORAGE	HANGOFF1425	1343-1403 NORTHERN BOULEVARD
ALLIED AVIATION	2	ALLIED AVIATION TRUCK MAINTENANCE	MAINT2	1403 NORTHERN BOULEVARD
ALPHA TANGO FLYING SERVICES	1430	HANGAR / OFFICE	HANGOFF1430	1331 NORTHERN BOULEVARD
ATHERTON PROPERTIES / HC AVIATION	1130	HANGAR / OFFICE	HANGOFF1130	903 PAUL WILKINS STREET
AVIS	1250	OFFICE/CUSTOMER CENTER/SHOP	OFF1250	9215 JOHN SAUNDERS ROAD
AVIS	1251	AVIS OFFICE	OFF1251	9235 JOHN SAUNDERS ROAD
BUS SHELTER		BUS SHELTER	BUSSHEL	1300 NORTHERN BOULEVARD
CENTRAL COOLING PLANT	1	CENTRAL COOLING PLANT	CCP1	9510 AIRPORT BLVD.
CENTRAL PLANT	CUP	CENTRAL UTILITY PLANT	CUP	1245 NORTH TERMINAL DRIVE
CENTRAL PLANT	TL1A	PROJECT (TCI) TRAILER SUITE 2	TL1A	1303 NORTH TERMINAL DRIVE
CENTRAL PLANT	TL1B	PROJECT (TCI) TRAILER SUITE 1	TL1B	1303 NORTH TERMINAL DRIVE
CENTRAL PLANT	1	HVAC PLANT	HVAC1	9510 AIRPORT BOULEVARD
CENTRAL PLANT	2	WATER STORAGE	WTRSTOR2	9510 AIRPORT BOULEVARD
CENTRAL PLANT	3	1 MG TANK	MGTANK3	9510 AIRPORT BOULEVARD
CLEAR CHANNEL OFFICE	1	OFFICE	CCOFF1	347 SANDAU AVENUE
CONRAC		RENTAL CAR HUB FACILITY	CONRAC	9559 AIRPORT BOULEVARD #563

CUTTER AVIATION	1020	HANGAR / OFFICE 1	HANGOFF1020	347 SANDAU ROAD
CUTTER AVIATION	1021	HANGAR AVIATION 2	HANG1021	367 SANDAU ROAD
CUTTER AVIATION	1	HANGAR 1	HANG1	367 SANDAU ROAD
DHL	1600	DHL HANGAR / OFFICE	HANGOFF1600	10307 WETMORE ROAD
FED EX	1620	HANGAR / OFFICE	HANGOFF1620	10311 WETMORE ROAD
FEDERAL EXPRESS	1	FEDERAL EXPRESS	FEDEX1	WETMORE ROAD
FLIGHT SAFETY	1290	FLIGHT SAFETY OFFICE / CLASSROOM	CLASS1290	9027 AIRPORT BOULEVARD
FUEL FACILITY	FFT	FUEL FACILITY WITH TANKS	FFT	8901 WETMORE ROAD
GAYLORD HARVEY GARAGE	1	GAYLORD HARVEY GARAGE	GRGE1	1243 98TH STREET
GROUND RUN UP ENCLOSURE	1	GROUND RUN UP ENCLOSURE	ENC1	1ST STREET
HALLMARK	1540	MILLION AIR OFFICE	OFF1540	8901 WETMORE ROAD
HALLMARK	1542	HANGAR 3 AND 4	HANG1542	8901 WETMORE ROAD
HALLMARK	1541A	HANGAR 1 WITH CLASSROOM	HANG1541A	8901 WETMORE ROAD
HALLMARK	1541B	HANGAR 2 WITH CLASSROOM	HANG1541B	8901 WETMORE ROAD
HERTZ	1154	MAINTENANCE OFFICE / SHOP	OFF1154	10223 JOHN SAUNDERS
HERTZ	1170	HERTZ - OFFICE /SHOP	OFF1170	910 WEST CARGO
HH AVIATION	1110	HANGAR / OFFICE	HANGOFF1110	10226 JOHN CAPE ROAD
HH AVIATION	1120	STORAGE BUILDING	STOR1120	911 PAUL WILKINS STREET
LANDMARK AVIATION	1050	HANGAR / OFFICE / TERMINAL	HANGOFF1050	557 SANDAU ROAD
LEWIS ENERGY GROUP	1100	LEWIS ENERGY GROUP HANGAR / OFFICE	HANGOFF1100	10310 JOHN CAPE
LEWIS ENERGY GROUP	LEHO	HANGAR / OFFICE	HANGLEHO	1101 PAUL WILKINS STREET
M7 AEROSPACE	1820	HANGAR 130	HANG1820	1910 1ST AVENUE
M7 AEROSPACE	1825	HANGAR 11	HANG1825	1903 1ST AVENUE
M7 AEROSPACE	1840	BUILDING 12 OFFICE	OFF1840	1964 1ST AVENUE
M7 AEROSPACE	1945	BUILDING 14 OFFICE	OFF1945	1964 1ST AVENUE
NUSTAR HANGAR		AIRPORT PROPERTY LEASED TO NUSTAR		11330 SAN PEDRO AVE

PARKING ADMINISTRATION	1362	OFFICE/CUSTOMER CENTER/SHOP	OFF1362	9453 AIRPORT BOULEVARD
PARKING BOOTH 2		LONG DISTANCE PARKING BOOTH		TERMINAL
PARKING OFFICES	1	ADMINISTRATION	ADMIN1	9427 AIRPORT BOULEVARD
SA AIRPORT WASTE FACILITY	2	TRASH COMPACTOR	TRASH2	1338 TERMINAL DRIVE
SAN ANTONIO INTERNATIONAL AIRPORT	1089	HANGAR 4 - VACANT	HANG1089	10440 JOHN CAPE ROAD
SAN ANTONIO INTERNATIONAL AIRPORT	1212	ELECTRIC VAULT - WEST VAULT	VAULT1212	JOHN SAUNDERS ROAD
SAN ANTONIO INTERNATIONAL AIRPORT	1316	HANGAR 2	HANG1316	1328 SOUTH TERMINAL
SAN ANTONIO INTERNATIONAL AIRPORT	1320	POLICE STATION	POLICE1320	9623 WEST TERMINAL
SAN ANTONIO INTERNATIONAL AIRPORT	1322	BADGE AND ID OFFICE	OFF1322	9623 WEST TERMINAL
SAN ANTONIO INTERNATIONAL AIRPORT	1341	AIRPORT TERMINAL B	TMLA	9800 AIRPORT BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	1370	AIRPORT TERMINAL A	TMLB	9710 AIRPORT BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	1399	ELECTRIC VAULT - LOT	VAULT1399	1304 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	1570	ELECTRIC VAULT - EAST VAULT	VAULT1570	10251 WETMORE ROAD
SAN ANTONIO INTERNATIONAL AIRPORT	2391	PARKING GARAGE - LONG TERM	PKG2391	9933 AIRPORT BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	2402	TRASH COMPACTOR	TRASH2402	1328 SOUTH TERMINAL
SAN ANTONIO INTERNATIONAL AIRPORT	2403	TRITURATOR BUILDING	TRIT2403	1338 TERMINAL DRIVE
SAN ANTONIO INTERNATIONAL AIRPORT	GRE	GROUND RUN UP ENCLOSURE	ENCGRE	NORTH OF NW RUNWAY 22

SAN ANTONIO INTERNATIONAL AIRPORT	HNG4	HANGAR 4	HANG4	9623 NORTH TERMINAL DRIVE
SAN ANTONIO INTERNATIONAL AIRPORT	PPEN	PARKING - ENTRANCE PLAZA	PKGPPEN	9933 AIRPORT BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	PPEX	PARKING - EXIT PLAZA	PKGPEX	9453 AIRPORT BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	SSG	SHUTTLE STOP - GREEN LOT	SHTLSSG	1127 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	SSO	SHUTTLE STOP - ORANGE LOT	SHTLSSO	1307 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	SSR	SHUTTLE STOP - RED LOT	SHTLSSR	1326 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	TBG	TICKET BOOTH - GREEN LOT	TKTTBG	1127 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	TBO	TICKET BOOTH - ORANGE LOT	TKTTBO	1307 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	TBR	TICKET BOOTH - RED LOT	TKTTBR	1326 NORTHERN BOULEVARD
SAN ANTONIO INTERNATIONAL AIRPORT	VT-5	VT AEROSPACE - HANGAR 5	HANGVT-5	9800 JOHN SAUNDERS
SAN ANTONIO INTERNATIONAL AIRPORT	VT-O	VT AEROSPACE - OFFICE/MAINT. HANGAR	HANGVT-O	9800 JOHN SAUNDERS
SAN ANTONIO INTERNATIONAL AIRPORT	VT-S	OFFICE (BACK SHOP 3A)	OFFVT-S	9800 JOHN SAUNDERS
SAN ANTONIO INTERNATIONAL AIRPORT	1	TICKET BOOTH	TKT1	1302 NORTHERN BOULEVARD
SECUR TECH	1	SECUR TECH	SECUR1	SANDUA ROAD
SECURITY AIR PARK	1040	HANGAR C	HANG1040	411 SANDAU ROAD
SECURITY AIR PARK	1041	HANGAR AVIATION 2	HANG1041	411 SANDAU ROAD
SECURITY AIR PARK	1042	HANGAR F	HANG1042	411 SANDAU ROAD

SECURITY AIR PARK	1043	HANGAR H	HANG1043	411 SANDAU ROAD
SECURITY AIR PARK	1044	HANGAR G	HANG1044	411 SANDAU ROAD
SECURITY AIR PARK	1045	HANGAR B	HANG1045	411 SANDAU ROAD
SECURITY AIR PARK	1046	HANGAR D	HANG1046	411 SANDAU ROAD
SECURITY AIR PARK	1047	HANGAR E	HANG1047	411 SANDAU ROAD
SECURITY AIR PARK	1048	HANGAR K	HANG1048	411 SANDAU ROAD
SECURITY AIR PARK	1049	HANGAR J	HANG1049	411 SANDAU ROAD
SECURITY AIR PARK	1	HANGAR	SAPHANG1	477 SANDAU ROAD
SECURITY AIR PARK ANNEX	1030	HANGAR 5 (PHILLIPS)	HANG1030	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1031	HANGAR 4 (CYBER JET)	HANG1031	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1032	HANGAR 3 (CYBER JET)	HANG1032	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1033	HANGAR 2 (AEROSPACE)	HANG1033	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1034	HANGAR 1 (EAGLE HANGAR)	HANG1034	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1035	HANGAR 6 (COKE DISTRIBUTION)	HANG1025	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	1039	OFFICE BLDG 1039	OFF1039	457 SANDAU ROAD
SECURITY AIR PARK ANNEX	6	CUSTOMS	CUST6	447 SANDAU ROAD
SECURITY AIR PARK ANNEX	7	CUSTOMS OFFICE	CUST7	447 SANDAU ROAD
SEWAGE TREATMENT		SEWAGE TREATMENT SHED	SEWTMT	10803 ENTRANCE NE
SIERRA VICTOR	SVS	HANGAR - MAINTENANCE / STORAGE	HANGSVS	1354 SOUTH TERMINAL DRIVE
SIGNATURE BUILDING	1090	HANGAR 3	HANG1090	1101 PAUL WILKINS STREET
SIGNATURE BUILDING	1095	HANGAR 1	HANG1095	1115 PAUL WILKINS STREET
SIGNATURE BUILDINGS	2	OFFICE/HANGAR	HANGOFF2	1115 PAUL WILKINS STREET
ST AEROSPACE SAN ANTONIO	3	OFFICE	OFF3	9800 JOHN SAUNDERS ROAD

STARGAZER AVIATION	1312	HANGAR 6	HANG1312	9611 TERMINAL WEST
STARGAZER AVIATION	1	HANGAR 6	6HANG1	9411 TERMINAL WEST
STINSON - VACANT	3	STORAGE (LEASED, HARVEY)	STOR3	1243 CADMUS STREET
STINSON (SAPD)	565A	SAPD - HELICOPTER	SAPD565A	8406A CADMUS STREET
STINSON (SAPD)	565B	SAPD - STORAGE BUILDING	SAPD565B	8406B CADMUS STREET
STINSON (SAPD)		SSF AIR TRAFFIC CONTROL TOWER	SSFATCT	1519 ASHLEY RD
STINSON AIRFIELD	1	HANGAR #1	SSFHANG1	8337 MISSION ROAD
STINSON AIRFIELD	2	HANGAR #2	SSFHANG2	8411 MISSION ROAD
STINSON AIRFIELD	3	PILOT LOUNGE	SSFPLT3	8411A MISSION ROAD
STINSON AIRFIELD	4	HANGAR #7	SSFHANG4	8523 MISSION ROAD
STINSON AIRFIELD	5	HANGAR #10	SSFHANG5	8623 MISSION ROAD
STINSON AIRFIELD	6	HANGAR #3	SSFHANG6	8341 MISSION ROAD
STINSON AIRFIELD	7	HANGAR #4	SSFHANG7	8441 MISSION ROAD
STINSON AIRFIELD	8	HANGAR #6	SSFHANG8	8503 MISSION ROAD
STINSON AIRFIELD	9	HANGAR #8	SSFHANG9	8547 MISSION ROAD
STINSON AIRFIELD	10	HANGAR #9	SSFHANG10	8619 MISSION ROAD
STINSON AIRFIELD	11	FIRE RISER / ELECTRICAL VAULT	VAULT11	8547 MISSION ROAD
STINSON AIRFIELD	12	TERMINAL / TOWER	SSFTML	8535 MISSION ROAD
STINSON AIRFIELD	13	HANGAR #11 (T-HANGAR)	SSFHANG13	8619B MISSION ROAD
STINSON AIRFIELD	14	HANGAR #12 (T-HANGAR)	SSFHANG14	8619C MISSION ROAD
STINSON AIRFIELD	NEW	FLAMMABLE STORAGE	SSFFLAMSTOR	8441A MISSION ROAD
STINSON COSA	1	CIVIL AIR PATROL #675	CIVAP1	8500 MISSION ROAD
STINSON COSA	2	MAINTENANCE	MAINT2	8410 MISSION ROAD

STINSON GARAGE (VACANT)		VACANT	SSFGRG	ASHLEY
STINSON GARDENS PROPERTY	1	HOUSE - ASHLEY	HOUSE1	1300 ASHLEY ROAD
STINSON GARDENS PROPERTY	2	GARAGE - ASHLEY	GRG2	1300 ASHLEY ROAD
STINSON HELICOPTER	1	SAPD HELICOPTER (OLD)	SAPDHELI1	1110 99 STREET
STINSON HELICOPTER	2	US HELICOPTER	USHELI2	1130 99 STREET
T HANGAR	1400	T HANGAR	THANG1400	1331 NORTHERN BOULEVARD
T HANGAR	1401	T HANGAR	THANG1401	1331 NORTHERN BOULEVARD
TEXAS AIR MUSEUM	1	TEXAS AIR MUSEUM	TAM1	1234 99 STREET
Unleased City Property	1	HANGAR	HANG1	1954 1ST AVENUE
USAA HANGAR	1070	HANGAR / OFFICE	HANGOFF1070	10500 JOHN CAPE ROAD
VACANT	1086	HANGAR 6	HANG1086	10440 JOHN CAPE
VACANT	1087	HANGAR 5	HANG1087	10440 JOHN CAPE
WEST CARGO BUILDING	1210	WEST CARGO BUILDING	CARGO1210	10330 JOHN SAUNDERS
WEST CARGO BUILDING	1	WEST CARGO BUILDING	CARGO1	10330 JOHN SAUNDERS ROAD
WRIGHT FLYERS HANGAR 2	1	WRIGHT FLYERS HANGAR 2	WFHANG1	1954 1ST AVENUE

Appendix B – Standard Sheet Lists

General Sheet List

Table 13 - General Sheet List

00 GENERAL		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
G001	COVER SHEET	000
G002	SHEET INDEX	000
G003	GENERAL NOTES, ABBREVIATIONS AND SYMBOLS	000
G004	BUILDING CODE ANALYSIS AND PROJECT INFORMATION	000
G100	OVERALL BASEMENT LIFE SAFETY PLAN	100
G100A	PARTIAL BASEMENT LIFE SAFETY PLAN – AREA A	100
G100B	PARTIAL BASEMENT LIFE SAFETY PLAN – AREA B	100
G101	OVERALL FIRST FLOOR LIFE SAFETY PLAN	100
G101A	PARTIAL FIRST FLOOR LIFE SAFETY PLAN – AREA A	100
G101B	PARTIAL FIRST FLOOR LIFE SAFETY PLAN – AREA B	100
G102	OVERALL SECOND FLOOR LIFE SAFETY PLAN	100
G102A	PARTIAL SECOND FLOOR LIFE SAFETY PLAN – AREA A	100
G102B	PARTIAL SECOND FLOOR LIFE SAFETY PLAN – AREA B	100
G501	FIRE RATED ASSEMBLIES	500
G502	FIRE RATED ASSEMBLIES	500
G511	FIRE PENETRATION DETAILS	500
G512	FIRE PENETRATION DETAILS	500
G521	PARTITION TYPES	500
G522	PARTITION TYPES	500

Structural Sheet List

Table 14 - Structural Sheet List

06 STRUCTURAL		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
S001	GENERAL STRUCTURAL NOTES	000
S002	GENERAL STRUCTURAL NOTES	000
S003	WIND PRESSURE DIAGRAM	000
SD101	OVERALL FOUNDATION DEMOLITION PLAN	100
SD101A	PARTIAL FOUNDATION DEMOLITION PLAN - AREA A	100
SD101B	PARTIAL FOUNDATION DEMOLITION PLAN - AREA B	100
SD102	OVERALL SECOND FLOOR FRAMING DEMOLITION PLAN	100
SD102A	PARTIAL SECOND FLOOR FRAMING DEMOLITION PLAN - AREA A	100
SD102B	PARTIAL SECOND FLOOR FRAMING DEMOLITION PLAN - AREA B	100
SD121	OVERALL ROOF FRAMING DEMOLITION PLAN	100

SD121A	PARTIAL ROOF FRAMING DEMOLITION PLAN - AREA A	100
SD121B	PARTIAL ROOF FRAMING DEMOLITION PLAN - AREA B	100
S101	OVERALL FOUNDATION PLAN	100
S101A	PARTIAL FOUNDATION PLAN - AREA A	100
S101B	PARTIAL FOUNDATION PLAN - AREA B	100
S102	OVERALL SECOND FLOOR FRAMING PLAN	100
S102A	PARTIAL SECOND FLOOR FRAMING PLAN - AREA A	100
S102B	PARTIAL SECOND FLOOR FRAMING PLAN - AREA B	100
S121	OVERALL ROOF FRAMING PLAN	100
S121A	PARTIAL ROOF FRAMING PLAN - AREA A	100
S121B	PARTIAL ROOF FRAMING PLAN - AREA B	100
S201	FRAMING ELEVATIONS	200
S202	FRAMING ELEVATIONS	200
S301	FOUNDATION SECTIONS	300
S302	FOUNDATION SECTIONS	300
S311	FLOOR FRAMING SECTIONS	300
S321	ROOF FRAMING SECTIONS	300
S331	AT/FP SECTIONS AND DETAILS	300
S401	ENLARGED PLANS	400
S501	TYPICAL DETAILS	500
S601	SCHEDULES	600
S901	3D ISOMETRICS	900

Architectural Sheet List

Table 15 - Architectural Sheet List

07 ARCHITECTURAL		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
AS101	ARCHITECTURAL SITE PLAN	000
AS401	ENLARGED ARCHITECTURAL SITE PLAN	000
AS501	ARCHITECTURAL SITE PLAN DETAILS	010
AD100	OVERALL BASEMENT DEMOLITION PLAN	010
AD100A	PARTIAL BASEMENT DEMOLITION PLAN – AREA A	010
AD100B	PARTIAL BASEMENT DEMOLITION PLAN – AREA B	010
AD101	OVERALL FIRST FLOOR DEMOLITION PLAN	010
AD101A	PARTIAL FIRST FLOOR DEMOLITION PLAN – AREA A	010
AD101B	PARTIAL FIRST FLOOR DEMOLITION PLAN – AREA B	010
AD102	OVERALL SECOND FLOOR DEMOLITION PLAN	010
AD102A	PARTIAL SECOND FLOOR DEMOLITION PLAN – AREA A	010
AD102B	PARTIAL SECOND FLOOR DEMOLITION PLAN – AREA B	010
AD130	OVERALL BASEMENT DEMOLITION REFLECTED CEILING PLAN	010
AD130A	PARTIAL BASEMENT DEMOLITION REFLECTED CEILING PLAN – AREA A	010
AD130B	PARTIAL BASEMENT DEMOLITION REFLECTED CEILING PLAN – AREA B	010

AD131	OVERALL FIRST FLOOR DEMOLITION REFLECTED CEILING PLAN	010
AD131A	PARTIAL FIRST FLOOR DEMOLITION REFLECTED CEILING PLAN - AREA A	010
AD131B	PARTIAL FIRST FLOOR DEMOLITION REFLECTED CEILING PLAN - AREA B	010
AD132	OVERALL SECOND FLOOR DEMOLITION REFLECTED CEILING PLAN	010
AD132A	PARTIAL SECOND FLOOR DEMOLITION REFLECTED CEILING PLAN - AREA A	010
AD132B	PARTIAL SECOND FLOOR DEMOLITION REFLECTED CEILING PLAN - AREA B	010
A100	OVERALL BASEMENT PLAN	100
A100A	PARTIAL BASEMENT PLAN – AREA A	100
A100B	PARTIAL BASEMENT PLAN – AREA B	100
A101	OVERALL FIRST FLOOR PLAN	100
A101A	PARTIAL FIRST FLOOR PLAN - AREA A	100
A101B	PARTIAL FIRST FLOOR PLAN - AREA B	100
A102	OVERALL SECOND FLOOR PLAN	100
A102A	PARTIAL SECOND FLOOR PLAN - AREA A	100
A102B	PARTIAL SECOND FLOOR PLAN - AREA B	100
A121	OVERALL ROOF PLAN	100
A121A	PARTIAL ROOF PLAN – AREA A	100
A121B	PARTIAL ROOF PLAN – AREA B	100
A130	OVERALL BASEMENT REFLECTED CEILING PLAN	100
A130A	PARTIAL BASEMENT REFLECTED CEILING PLAN – AREA A	100
A130B	PARTIAL BASEMENT REFLECTED CEILING PLAN – AREA B	100
A131	OVERALL FIRST FLOOR REFLECTED CEILING PLAN	100
A131A	PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA A	100
A131B	PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - AREA B	100
A132	OVERALL SECOND FLOOR REFLECTED CEILING PLAN	100
A132A	PARTIAL SECOND FLOOR REFLECTED CEILING PLAN - AREA A	100
A132B	PARTIAL SECOND FLOOR REFLECTED CEILING PLAN - AREA B	100
A201	BUILDING ELEVATIONS	200
A202	BUILDING ELEVATIONS	200
A211	PARTIAL BUILDING ELEVATIONS	200
A212	PARTIAL BUILDING ELEVATIONS	200
A301	BUILDING SECTION	300
A302	BUILDING SECTION	300
A311	EXTERIOR WALL SECTIONS	300
A312	EXTERIOR WALL SECTIONS	300
A401	ENLARGED PLANS AND INTERIOR ELEVATIONS	400
A402	ENLARGED PLANS AND INTERIOR ELEVATIONS	400
A421	ADA MOUNTING HEIGHTS	400
A422	ENLARGED RESTROOM PLANS AND INTERIOR ELEVATIONS	400
A423	ENLARGED RESTROOM PLANS AND INTERIOR ELEVATIONS	400
A431	ENLARGED KITCHEN PLANS AND INTERIOR ELEVATIONS	400
A432	ENLARGED KITCHEN PLANS AND INTERIOR ELEVATIONS	400
A451	STAIR PLANS AND SECTIONS	400
A452	STAIR PLANS AND SECTIONS	400
A461	ELEVATOR PLANS AND SECTIONS	400

A462	ELEVATOR PLANS AND SECTIONS	400
A501	PLAN DETAILS	500
A502	PLAN DETAILS	500
A521	ROOF DETAILS	500
A522	ROOF DETAILS	500
A531	CEILING DETAILS	500
A532	CEILING DETAILS	500
A541	BUILDING ELEVATION DETAILS	500
A542	BUILDING ELEVATION DETAILS	500
A551	WALL DETAILS	500
A552	WALL DETAILS	500
A561	STAIR DETAILS	500
A562	STAIR DETAILS	500
A571	ELEVATOR DETAILS	500
A572	ELEVATOR DETAILS	500
A601	DOOR SCHEDULE, DOOR TYPES AND NOTES	600
A602	DOOR SCHEDULE, DOOR TYPES AND NOTES	600
A603	DOOR DETAILS	600
A604	DOOR DETAILS	600
A611	WINDOW TYPES AND NOTES	600
A612	WINDOW TYPES AND NOTES	600
A613	WINDOW DETAILS	600
A614	WINDOW DETAILS	600
A621	ROOM FINISH SCHEDULE, LEGEND AND NOTES	600
A631	SIGNAGE SCHEDULE, ELEVATIONS AND NOTES	600
A701	INTERIOR MILLWORK SECTIONS AND DETAILS	700
A702	INTERIOR MILLWORK SECTIONS AND DETAILS	700
A711	CASEWORK DETAILS	700
A712	CASEWORK DETAILS	700
A800	OVERALL BASEMENT INTERIOR FINISH PLAN	800
A800A	PARTIAL BASEMENT INTERIOR FINISH PLAN – AREA A	0800
A800B	PARTIAL BASEMENT INTERIOR FINISH PLAN – AREA B	800
A801	OVERALL FIRST FLOOR INTERIOR FINISH PLAN	800
A801A	PARTIAL FIRST FLOOR INTERIOR FINISH PLAN - AREA A	800
A801B	PARTIAL FIRST FLOOR INTERIOR FINISH PLAN - AREA B	800
A802	OVERALL SECOND FLOOR INTERIOR FINISH PLAN	800
A802A	PARTIAL SECOND FLOOR INTERIOR FINISH PLAN - AREA A	800
A802B	PARTIAL SECOND FLOOR INTERIOR FINISH PLAN - AREA B	800
A811	ENLARGED INTERIOR FINISH PLANS AND ELEVATIONS	800
A812	ENLARGED INTERIOR FINISH PLANS AND ELEVATIONS	800
A821	FLOOR FINISH TRANSITION DETAILS	800
A822	FLOOR FINISH TRANSITION DETAILS	800
A831	OVERALL FIRST FLOOR INTERIOR SIGNAGE PLAN	800
A831A	PARTIAL FIRST FLOOR INTERIOR SIGNAGE PLAN – AREA A	800
A831B	PARTIAL FIRST FLOOR INTERIOR SIGNAGE PLAN – AREA B	800

A832	OVERALL SECOND FLOOR INTERIOR SIGNAGE PLAN	800
A832A	PARTIAL SECOND FLOOR INTERIOR SIGNAGE PLAN – AREA A	800
A832B	PARTIAL SECOND FLOOR INTERIOR SIGNAGE PLAN – AREA B	800
A901	3D PERSPECTIVE VIEWS AND RENDERINGS	900
A902	3D PERSPECTIVE VIEWS AND RENDERINGS	900
A903	PHOTOGRAPHS	900
A904	PHOTOGRAPHS	900

Interiors Sheet List

Table 16 - Interiors Sheet List

08 INTERIORS		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
I100	OVERALL BASEMENT INTERIOR FURNITURE PLAN	100
I100A	PARTIAL BASEMENT INTERIOR FURNITURE PLAN – AREA A	100
I100B	PARTIAL BASEMENT INTERIOR FURNITURE PLAN – AREA B	100
I101	OVERALL FIRST FLOOR INTERIOR FURNITURE PLAN	100
I101A	PARTIAL FIRST FLOOR INTERIOR FURNITURE PLAN - AREA A	100
I101B	PARTIAL FIRST FLOOR INTERIOR FURNITURE PLAN - AREA B	100
I102	OVERALL SECOND FLOOR INTERIOR FURNITURE PLAN	100
I102A	PARTIAL SECOND FLOOR INTERIOR FURNITURE PLAN - AREA A	100
I102B	PARTIAL SECOND FLOOR INTERIOR FURNITURE PLAN - AREA B	100
I401	ENLARGED FURNITURE PLANS AND ELEVATIONS	400
I402	ENLARGED FURNITURE PLANS AND ELEVATIONS	400
I501	FURNITURE DETAILS	500
I502	FURNITURE DETAILS	500
I601	FURNITURE SCHEDULE AND NOTES	600
I901	FURNITURE 3D PERSPECTIVE VIEWS AND RENDERINGS	600

Equipment Sheet List

The Equipment sheet list may be used for the inclusion of non-interdisciplinary sheets that may or may not include the scope of work of an outside consultant. For example, this sheet list could be used to include items such as Food Service, Baggage Handling, Acoustics, etc.

Table 17 - Equipment Sheet List

09 EQUIPMENT		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
Q001	EQUIPMENT GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
QD100	OVERALL BASEMENT DEMOLITION EQUIPMENT PLAN	010
QD100A	PARTIAL BASEMENT DEMOLITION EQUIPMENT PLAN – AREA A	010

QD100B	PARTIAL BASEMENT DEMOLITION EQUIPMENT PLAN – AREA B	010
QD101	OVERALL FIRST FLOOR DEMOLITION EQUIPMENT PLAN	010
QD101A	PARTIAL FIRST FLOOR DEMOLITION EQUIPMENT PLAN – AREA A	010
QD101B	PARTIAL FIRST FLOOR DEMOLITION EQUIPMENT PLAN – AREA B	010
QD102	OVERALL SECOND FLOOR DEMOLITION EQUIPMENT PLAN	010
QD102A	PARTIAL SECOND FLOOR DEMOLITION EQUIPMENT PLAN – AREA A	010
QD102B	PARTIAL SECOND FLOOR DEMOLITION EQUIPMENT PLAN – AREA B	010
Q100	OVERALL BASEMENT EQUIPMENT PLAN	100
Q100A	PARTIAL BASEMENT EQUIPMENT PLAN – AREA A	100
Q100B	PARTIAL BASEMENT EQUIPMENT PLAN – AREA B	100
Q101	OVERALL FIRST FLOOR EQUIPMENT PLAN	100
Q101A	PARTIAL FIRST FLOOR EQUIPMENT PLAN – AREA A	100
Q101B	PARTIAL FIRST FLOOR EQUIPMENT PLAN – AREA B	100
Q102	OVERALL SECOND FLOOR EQUIPMENT PLAN	100
Q102A	PARTIAL SECOND FLOOR EQUIPMENT PLAN – AREA A	100
Q102B	PARTIAL SECOND FLOOR EQUIPMENT PLAN – AREA B	100
Q401	EQUIPMENT ENLARGED PLANS	400
Q501	EQUIPMENT DETAILS	500
Q601	EQUIPMENT SCHEDULES	600
Q901	EQUIPMENT 3D PERSPECTIVE VIEWS AND RENDERINGS	900

Fire Protection Sheet List

Table 18 - Fire Protection Sheet List

10 FIRE PROTECTION		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
F001	FIRE PROTECTION GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
FD100	OVERALL BASEMENT FIRE ALARM REFLECTED CEILING DEMOLITION PLAN	010
FD100A	PARTIAL BASEMENT FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA A	010
FD100B	PARTIAL BASEMENT FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA B	010
FD101	OVERALL FIRST FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN	010
FD101A	PARTIAL FIRST FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA A	010
FD101B	PARTIAL FIRST FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA B	010
FD102	OVERALL SECOND FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN	010
FD102A	PARTIAL SECOND FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA A	010
FD102B	PARTIAL SECOND FLOOR FIRE ALARM REFLECTED CEILING DEMOLITION PLAN – AREA B	010
FD110	OVERALL BASEMENT FIRE SUPPRESSION DEMOLITION PLAN	010
FD110A	PARTIAL BASEMENT FIRE SUPPRESSION DEMOLITION PLAN – AREA A	010
FD110B	PARTIAL BASEMENT FIRE SUPPRESSION DEMOLITION PLAN – AREA B	010
FD111	OVERALL FIRST FLOOR FIRE SUPPRESSION DEMOLITION PLAN	010
FD111A	PARTIAL FIRST FLOOR FIRE SUPPRESSION DEMOLITION PLAN – AREA A	010

FD111B	PARTIAL FIRST FLOOR FIRE SUPPRESSION DEMOLITION PLAN – AREA B	010
FD112	OVERALL SECOND FLOOR FIRE SUPPRESSION DEMOLITION PLAN	010
FD112A	PARTIAL SECOND FLOOR FIRE SUPPRESSION DEMOLITION PLAN – AREA A	010
FD112B	PARTIAL SECOND FLOOR FIRE SUPPRESSION DEMOLITION PLAN – AREA B	010
FA100	OVERALL BASEMENT FIRE ALARM REFLECTED CEILING PLAN	100
FA100A	PARTIAL BASEMENT FIRE ALARM REFLECTED CEILING PLAN – AREA A	100
FA100B	PARTIAL BASEMENT FIRE ALARM REFLECTED CEILING PLAN – AREA B	100
FA101	OVERALL FIRST FLOOR FIRE ALARM REFLECTED CEILING PLAN	100
FA101A	PARTIAL FIRST FLOOR FIRE ALARM REFLECTED CEILING PLAN – AREA A	100
FA101B	PARTIAL FIRST FLOOR FIRE ALARM REFLECTED CEILING PLAN – AREA B	100
FA102	OVERALL SECOND FLOOR FIRE ALARM REFLECTED CEILING PLAN	100
FA102A	PARTIAL SECOND FLOOR FIRE ALARM REFLECTED CEILING PLAN – AREA A	100
FA102B	PARTIAL SECOND FLOOR FIRE ALARM REFLECTED CEILING PLAN – AREA B	100
FX100	OVERALL BASEMENT FIRE SUPPRESSION PLAN	100
FX100A	PARTIAL BASEMENT FIRE SUPPRESSION PLAN – AREA A	100
FX100B	PARTIAL BASEMENT FIRE SUPPRESSION PLAN – AREA B	100
FX101	OVERALL FIRST FLOOR FIRE SUPPRESSION PLAN	100
FX101A	PARTIAL FIRST FLOOR FIRE SUPPRESSION PLAN – AREA A	100
FX101B	PARTIAL FIRST FLOOR FIRE SUPPRESSION PLAN – AREA B	100
FX102	OVERALL SECOND FLOOR FIRE SUPPRESSION PLAN	100
FX102A	PARTIAL SECOND FLOOR FIRE SUPPRESSION PLAN – AREA A	100
FX102B	PARTIAL SECOND FLOOR FIRE SUPPRESSION PLAN – AREA B	100
F401	FIRE PROTECTION ENLARGED PLANS	400
F501	FIRE PROTECTION DETAILS	500
F601	FIRE PROTECTION SCHEDULES	600
F701	FIRE PROTECTION RISER DIAGRAMS	700
F901	FIRE PROTECTION ISOMETRICS	900

Plumbing Sheet List

Table 19 - Plumbing Sheet List

11 PLUMBING		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
P001	PLUMBING GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
PD100	OVERALL BASEMENT PRESSURE PIPING DEMOLITION PLAN	010
PD100A	PARTIAL BASEMENT PRESSURE PIPING DEMOLITION PLAN – AREA A	010
PD100B	PARTIAL BASEMENT PRESSURE PIPING DEMOLITION PLAN – AREA B	010
PD101	OVERALL FIRST FLOOR PRESSURE PIPING DEMOLITION PLAN	010
PD101A	PARTIAL FIRST FLOOR PRESSURE PIPING DEMOLITION PLAN – AREA A	010
PD101B	PARTIAL FIRST FLOOR PRESSURE PIPING DEMOLITION PLAN – AREA B	010
PD102	OVERALL SECOND FLOOR PRESSURE PIPING DEMOLITION PLAN	010
PD102A	PARTIAL SECOND FLOOR PRESSURE PIPING DEMOLITION PLAN – AREA A	010
PD102B	PARTIAL SECOND FLOOR PRESSURE PIPING DEMOLITION PLAN – AREA B	010

PD110	OVERALL BASEMENT DRAIN WASTE VENT PIPING DEMOLITION PLAN	010
PD110A	PARTIAL BASEMENT DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA A	010
PD110B	PARTIAL BASEMENT DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA B	010
PD111	OVERALL FIRST FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN	010
PD111A	PARTIAL FIRST FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA A	010
PD111B	PARTIAL FIRST FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA B	010
PD112	OVERALL SECOND FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN	010
PD112A	PARTIAL SECOND FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA A	010
PD112B	PARTIAL SECOND FLOOR DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA B	010
PD121	OVERALL ROOF DRAIN WASTE VENT PIPING DEMOLITION PLAN	010
PD121A	PARTIAL ROOF DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA A	010
PD121B	PARTIAL ROOF DRAIN WASTE VENT PIPING DEMOLITION PLAN – AREA B	010
PP100	OVERALL BASEMENT PRESSURE PIPING PLAN	100
PP100A	PARTIAL BASEMENT PRESSURE PIPING PLAN – AREA A	100
PP100B	PARTIAL BASEMENT PRESSURE PIPING PLAN – AREA B	100
PP101	OVERALL FIRST FLOOR PRESSURE PIPING PLAN	100
PP101A	PARTIAL FIRST FLOOR PRESSURE PIPING PLAN – AREA A	100
PP101B	PARTIAL FIRST FLOOR PRESSURE PIPING PLAN – AREA B	100
PP102	OVERALL SECOND FLOOR PRESSURE PIPING PLAN	100
PP102A	PARTIAL SECOND FLOOR PRESSURE PIPING PLAN – AREA A	100
PP102B	PARTIAL SECOND FLOOR PRESSURE PIPING PLAN – AREA B	100
PP110	OVERALL BASEMENT DRAIN WASTE VENT PIPING PLAN	100
PP110A	PARTIAL BASEMENT DRAIN WASTE VENT PIPING PLAN – AREA A	100
PP110B	PARTIAL BASEMENT DRAIN WASTE VENT PIPING PLAN – AREA B	100
PP111	OVERALL FIRST FLOOR DRAIN WASTE VENT PIPING PLAN	100
PP111A	PARTIAL FIRST FLOOR DRAIN WASTE VENT PIPING PLAN – AREA A	100
PP111B	PARTIAL FIRST FLOOR DRAIN WASTE VENT PIPING PLAN – AREA B	100
PP112	OVERALL SECOND FLOOR DRAIN WASTE VENT PIPING PLAN	100
PP112A	PARTIAL SECOND FLOOR DRAIN WASTE VENT PIPING PLAN – AREA A	100
PP112B	PARTIAL SECOND FLOOR DRAIN WASTE VENT PIPING PLAN – AREA B	100
PP121	OVERALL ROOF DRAIN WASTE VENT PIPING PLAN	100
PP121A	PARTIAL ROOF DRAIN WASTE VENT PIPING PLAN – AREA A	100
PP121B	PARTIAL ROOF DRAIN WASTE VENT PIPING PLAN – AREA B	100
P401	PLUMBING ENLARGED PLANS	400
P501	PLUMBING DETAILS	500
P601	PLUMBING SCHEDULES	600
P701	PLUMBING RISER DIAGRAMS	700
P901	PLUMBING ISOMETRICS	900

Mechanical Sheet List

Table 20 - Mechanical Sheet List

13 MECHANICAL

SHEET NO.	SHEET NAME	SUB-SORTING CODE
M001	MECHANICAL GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
MS101	MECHANICAL SITE PLAN	000
MD100	OVERALL BASEMENT HVAC DEMOLITION PLAN	010
MD100A	PARTIAL BASEMENT HVAC DEMOLITION PLAN – AREA A	010
MD100B	PARTIAL BASEMENT HVAC DEMOLITION PLAN – AREA B	010
MD101	OVERALL FIRST FLOOR HVAC DEMOLITION PLAN	010
MD101A	PARTIAL FIRST FLOOR HVAC DEMOLITION PLAN – AREA A	010
MD101B	PARTIAL FIRST FLOOR HVAC DEMOLITION PLAN – AREA B	010
MD102	OVERALL SECOND FLOOR HVAC DEMOLITION PLAN	010
MD102A	PARTIAL SECOND FLOOR HVAC DEMOLITION PLAN – AREA A	010
MD102B	PARTIAL SECOND FLOOR HVAC DEMOLITION PLAN – AREA B	010
MD111	OVERALL ROOF HVAC DEMOLITION PLAN	010
MD111A	PARTIAL ROOF HVAC DEMOLITION PLAN – AREA A	010
MD111B	PARTIAL ROOF HVAC DEMOLITION PLAN – AREA B	010
MD120	OVERALL BASEMENT HVAC PIPING DEMOLITION PLAN	010
MD120A	PARTIAL BASEMENT HVAC PIPING DEMOLITION PLAN – AREA A	010
MD120B	PARTIAL BASEMENT HVAC PIPING DEMOLITION PLAN – AREA B	010
MD121	OVERALL FIRST FLOOR HVAC PIPING DEMOLITION PLAN	010
MD121A	PARTIAL FIRST FLOOR HVAC PIPING DEMOLITION PLAN – AREA A	010
MD121B	PARTIAL FIRST FLOOR HVAC PIPING DEMOLITION PLAN – AREA B	010
MD122	OVERALL SECOND FLOOR HVAC PIPING DEMOLITION PLAN	010
MD122A	PARTIAL SECOND FLOOR HVAC PIPING DEMOLITION PLAN – AREA A	010
MD122B	PARTIAL SECOND FLOOR HVAC PIPING DEMOLITION PLAN – AREA B	010
MD131	OVERALL ROOF HVAC PIPING DEMOLITION PLAN	010
MD131A	PARTIAL ROOF HVAC PIPING DEMOLITION PLAN – AREA A	010
MD131B	PARTIAL ROOF HVAC PIPING DEMOLITION PLAN – AREA B	010
MH100	OVERALL BASEMENT HVAC PLAN	100
MH100A	PARTIAL BASEMENT HVAC PLAN – AREA A	100
MH100B	PARTIAL BASEMENT HVAC PLAN – AREA B	100
MH101	OVERALL FIRST FLOOR HVAC PLAN	100
MH101A	PARTIAL FIRST FLOOR HVAC PLAN – AREA A	100
MH101B	PARTIAL FIRST FLOOR HVAC PLAN – AREA B	100
MH102	OVERALL SECOND FLOOR HVAC PLAN	100
MH102A	PARTIAL SECOND FLOOR HVAC PLAN – AREA A	100
MH102B	PARTIAL SECOND FLOOR HVAC PLAN – AREA B	100
MH121	OVERALL ROOF HVAC PLAN	100
MH121A	PARTIAL ROOF HVAC PLAN – AREA A	100
MH111B	PARTIAL ROOF HVAC PLAN – AREA B	100
MP100	OVERALL BASEMENT HVAC PIPING PLAN	100
MP100A	PARTIAL BASEMENT HVAC PIPING PLAN – AREA A	100
MP100B	PARTIAL BASEMENT HVAC PIPING PLAN – AREA B	100
MP101	OVERALL FIRST FLOOR HVAC PIPING PLAN	100
MP101A	PARTIAL FIRST FLOOR HVAC PIPING PLAN – AREA A	100

MP101B	PARTIAL FIRST FLOOR HVAC PIPING PLAN – AREA B	100
MP102	OVERALL SECOND FLOOR HVAC PIPING PLAN	100
MP102A	PARTIAL SECOND FLOOR HVAC PIPING PLAN – AREA A	100
MP102B	PARTIAL SECOND FLOOR HVAC PIPING PLAN – AREA B	100
MP121	OVERALL ROOF HVAC PIPING PLAN	100
MP121A	PARTIAL ROOF HVAC PIPING PLAN – AREA A	100
MP121B	PARTIAL ROOF HVAC PIPING PLAN – AREA B	100
MH401	HVAC ENLARGED PLANS	400
MP401	HVAC PIPING ENLARGED PLANS	400
MH501	HVAC DETAILS	500
MP501	HVAC PIPING DETAILS	500
M601	MECHANICAL SCHEDULES	600
MP701	HVAC PIPING RISER DIAGRAMS	700
M901	MECHANICAL ISOMETRICS	900

Electrical Sheet List

Table 21 - Electrical Sheet List

14 ELECTRICAL		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
E001	ELECTRICAL GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
ES101	ELECTRICAL SITE PLAN	000
ES102	DEMOLITION SITE PLAN	000
ED100	OVERALL BASEMENT DEMOLITION LIGHTING PLAN	010
ED100A	PARTIAL BASEMENT DEMOLITION LIGHTING PLAN – AREA A	010
ED100B	PARTIAL BASEMENT DEMOLITION LIGHTING PLAN – AREA B	010
ED101	OVERALL FIRST FLOOR DEMOLITION LIGHTING PLAN	010
ED101A	PARTIAL FIRST FLOOR DEMOLITION LIGHTING PLAN – AREA A	010
ED101B	PARTIAL FIRST FLOOR DEMOLITION LIGHTING PLAN – AREA B	010
ED102	OVERALL SECOND FLOOR DEMOLITION LIGHTING PLAN	010
ED102A	PARTIAL SECOND FLOOR DEMOLITION LIGHTING PLAN – AREA A	010
ED102B	PARTIAL SECOND FLOOR DEMOLITION LIGHTING PLAN – AREA B	010
ED110	OVERALL BASEMENT DEMOLITION POWER PLAN	010
ED110A	PARTIAL BASEMENT DEMOLITION POWER PLAN – AREA A	010
ED110B	PARTIAL BASEMENT DEMOLITION POWER PLAN – AREA B	010
ED111	OVERALL FIRST FLOOR DEMOLITION POWER PLAN	010
ED111A	PARTIAL FIRST FLOOR DEMOLITION POWER PLAN – AREA A	010
ED111B	PARTIAL FIRST FLOOR DEMOLITION POWER PLAN – AREA B	010
ED112	OVERALL SECOND FLOOR DEMOLITION POWER PLAN	010
ED112A	PARTIAL SECOND FLOOR DEMOLITION POWER PLAN – AREA A	010
ED112B	PARTIAL SECOND FLOOR DEMOLITION POWER PLAN – AREA B	010
ED121	OVERALL ROOF DEMOLITION POWER PLAN	010
ED121A	PARTIAL ROOF DEMOLITION POWER PLAN – AREA A	010

ED121B	PARTIAL ROOF DEMOLITION POWER PLAN – AREA B	010
EL100	OVERALL BASEMENT LIGHTING PLAN	100
EL100A	PARTIAL BASEMENT LIGHTING PLAN – AREA A	100
EL100B	PARTIAL BASEMENT LIGHTING PLAN – AREA B	100
EL101	OVERALL FIRST FLOOR LIGHTING PLAN	100
EL101A	PARTIAL FIRST FLOOR LIGHTING PLAN – AREA A	100
EL101B	PARTIAL FIRST FLOOR LIGHTING PLAN – AREA B	100
EL102	OVERALL SECOND FLOOR LIGHTING PLAN	100
EL102A	PARTIAL SECOND FLOOR LIGHTING PLAN – AREA A	100
EL102B	PARTIAL SECOND FLOOR LIGHTING PLAN – AREA B	100
EG101	OVERALL ELECTRICAL GROUNDING PLAN	100
EG121	OVERALL ROOF ELECTRICAL GROUNDING PLAN	
EP110	OVERALL BASEMENT POWER PLAN	100
EP110A	PARTIAL BASEMENT POWER PLAN – AREA A	100
EP110B	PARTIAL BASEMENT POWER PLAN – AREA B	100
EP111	OVERALL FIRST FLOOR POWER PLAN	100
EP111A	PARTIAL FIRST FLOOR POWER PLAN – AREA A	100
EP111B	PARTIAL FIRST FLOOR POWER PLAN – AREA B	100
EP112	OVERALL SECOND FLOOR POWER PLAN	100
EP112A	PARTIAL SECOND FLOOR POWER PLAN – AREA A	100
EP112B	PARTIAL SECOND FLOOR POWER PLAN – AREA B	100
EP121	OVERALL ROOF POWER PLAN	100
EP121A	PARTIAL ROOF POWER PLAN – AREA A	100
EP121B	PARTIAL ROOF POWER PLAN – AREA B	100
EG131	OVERALL LIGHTNING PROTECTION AND GROUNDING PLAN	100
EG131A	PARTIAL LIGHTNING PROTECTION AND GROUNDING PLAN – AREA A	100
EG131B	PARTIAL LIGHTNING PROTECTION AND GROUNDING PLAN – AREA B	100
FD100	OVERALL BASEMENT FIRE ALARM DEMOLITION PLAN	010
FD100A	PARTIAL BASEMENT FIRE ALARM DEMOLITION PLAN – AREA A	010
FD100B	PARTIAL BASEMENT FIRE ALARM DEMOLITION PLAN – AREA B	010
FD101	OVERALL FIRST FLOOR FIRE ALARM DEMOLITION PLAN	010
FD101A	PARTIAL FIRST FLOOR FIRE ALARM DEMOLITION PLAN – AREA A	010
FD101B	PARTIAL FIRST FLOOR FIRE ALARM DEMOLITION PLAN – AREA B	010
FD102	OVERALL SECOND FLOOR FIRE ALARM DEMOLITION PLAN	010
FD102A	PARTIAL SECOND FLOOR FIRE ALARM DEMOLITION PLAN – AREA A	010
FD102B	PARTIAL SECOND FLOOR FIRE ALARM DEMOLITION PLAN – AREA B	010
FA100	OVERALL BASEMENT FIRE ALARM PLAN	100
FA100A	PARTIAL BASEMENT FIRE ALARM PLAN – AREA A	100
FA100B	PARTIAL BASEMENT FIRE ALARM PLAN – AREA B	100
FA101	OVERALL FIRST FLOOR FIRE ALARM PLAN	100
FA101A	PARTIAL FIRST FLOOR FIRE ALARM PLAN – AREA A	100
FA101B	PARTIAL FIRST FLOOR FIRE ALARM PLAN – AREA B	100
FA102	OVERALL SECOND FLOOR FIRE ALARM PLAN	100
FA102A	PARTIAL SECOND FLOOR FIRE ALARM PLAN – AREA A	100
FA102B	PARTIAL SECOND FLOOR FIRE ALARM PLAN – AREA B	100

EP401	ENLARGED ELECTRICAL PLANS	400
EP501	ELECTRICAL DETAILS	500
EP601	ELECTRICAL PANEL SCHEDULES	600
EL602	LUMINAIRE SCHEDULE	600
E701	ELECTRICAL ONE LINE DIAGRAM	700
FA701	FIRE ALARM RISER DIAGRAM	700
EP901	ELECTRICAL ISOMETRICS	900

Telecommunications Sheet List

Table 22 - Telecommunications Sheet List

16 TELECOMMUNICATIONS		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
T001	TELECOMMUNICATIONS SYMBOLS, LEGEND AND ABBREVIATIONS	000
TS101	TELECOMMUNICATIONS SITE PLAN	000
TS102	TELECOMMUNICATIONS DEMOLITION SITE PLAN	000
TD100	OVERALL BASEMENT TELECOMMUNICATIONS DEMOLITION PLAN	010
TD100A	PARTIAL BASEMENT TELECOMMUNICATIONS DEMOLITION PLAN – AREA A	010
TD100B	PARTIAL BASEMENT TELECOMMUNICATIONS DEMOLITION PLAN – AREA B	010
TD101	OVERALL FIRST FLOOR TELECOMMUNICATIONS DEMOLITION PLAN	010
TD101A	PARTIAL FIRST FLOOR TELECOMMUNICATIONS DEMOLITION PLAN – AREA A	010
TD101B	PARTIAL FIRST FLOOR TELECOMMUNICATIONS DEMOLITION PLAN – AREA B	010
TD102	OVERALL SECOND FLOOR TELECOMMUNICATIONS DEMOLITION PLAN	010
TD102A	PARTIAL SECOND FLOOR TELECOMMUNICATIONS DEMOLITION PLAN – AREA A	010
TD102B	PARTIAL SECOND FLOOR TELECOMMUNICATIONS DEMOLITION PLAN – AREA B	010
TD110	OVERALL BASEMENT SECURITY DEMOLITION PLAN	010
TD110A	PARTIAL BASEMENT SECURITY DEMOLITION PLAN – AREA A	010
TD110B	PARTIAL BASEMENT SECURITY DEMOLITION PLAN – AREA B	010
TD111	OVERALL FIRST FLOOR SECURITY DEMOLITION PLAN	010
TD111A	PARTIAL FIRST FLOOR SECURITY DEMOLITION PLAN – AREA A	010
TD111B	PARTIAL FIRST FLOOR SECURITY DEMOLITION PLAN – AREA B	010
TD112	OVERALL SECOND FLOOR SECURITY DEMOLITION PLAN	010
TD112A	PARTIAL SECOND FLOOR SECURITY DEMOLITION PLAN – AREA A	010
TD112B	PARTIAL SECOND FLOOR SECURITY DEMOLITION PLAN – AREA B	010
TD121	OVERALL ROOF SECURITY DEMOLITION PLAN	010
TD121A	PARTIAL ROOF SECURITY DEMOLITION PLAN – AREA A	010
TD121B	PARTIAL ROOF SECURITY DEMOLITION PLAN – AREA B	010
T100	OVERALL BASEMENT TELECOMMUNICATIONS PLAN	100
T100A	PARTIAL BASEMENT TELECOMMUNICATIONS PLAN – AREA A	100
T100B	PARTIAL BASEMENT TELECOMMUNICATIONS PLAN – AREA B	100
T101	OVERALL FIRST FLOOR TELECOMMUNICATIONS PLAN	100
T101A	PARTIAL FIRST FLOOR TELECOMMUNICATIONS PLAN – AREA A	100
T101B	PARTIAL FIRST FLOOR TELECOMMUNICATIONS PLAN – AREA B	100

T102	OVERALL SECOND FLOOR TELECOMMUNICATIONS PLAN	100
T102A	PARTIAL SECOND FLOOR TELECOMMUNICATIONS PLAN – AREA A	100
T102B	PARTIAL SECOND FLOOR TELECOMMUNICATIONS PLAN – AREA B	100
TY110	OVERALL BASEMENT SECURITY PLAN	100
TY110A	PARTIAL BASEMENT SECURITY PLAN – AREA A	100
TY110B	PARTIAL BASEMENT SECURITY PLAN – AREA B	100
TY111	OVERALL FIRST FLOOR SECURITY PLAN	100
TY111A	PARTIAL FIRST FLOOR SECURITY PLAN – AREA A	100
TY111B	PARTIAL FIRST FLOOR SECURITY PLAN – AREA B	100
TY112	OVERALL SECOND FLOOR SECURITY PLAN	100
TY112A	PARTIAL SECOND FLOOR SECURITY PLAN – AREA A	100
TY112B	PARTIAL SECOND FLOOR SECURITY PLAN – AREA B	100
TY121	OVERALL ROOF SECURITY PLAN	100
TY121A	PARTIAL ROOF SECURITY PLAN – AREA A	100
TY121B	PARTIAL ROOF SECURITY PLAN – AREA B	100
T401	ENLARGED TELECOMMUNICATIONS PLANS	400
T501	TELECOMMUNICATIONS DETAILS	500
TY502	SECURITY DETAILS	500
TA503	CCTV DETAILS	500
T701	TELECOMMUNICATIONS RISER DIAGRAM	700
TY702	ACCESS CONTROLS RISER DIAGRAM	700
TI703	PAGING SYSTEM RISER DIAGRAM	700
TA704	CCTV RISER DIAGRAM	700

Other Disciplines Sheet List

The Other Disciplines sheet list may be used for the inclusion of non-interdisciplinary sheets that may or may not include the scope of work of an outside consultant. For example, this sheet list could be used to include items such as Food Service, Baggage Handling, Acoustics, etc.

Table 23 - Other Disciplines Sheet List

18 OTHER DISPLINES		
SHEET NO.	SHEET NAME	SUB-SORTING CODE
X001	OTHER DISCIPLINES GENERAL NOTES, SYMBOLS AND ABBREVIATIONS	000
XD100	OVERALL BASEMENT DEMOLITION OTHER DISCIPLINES PLAN	010
XD100A	PARTIAL BASEMENT DEMOLITION OTHER DISCIPLINES PLAN – AREA A	010
XD100B	PARTIAL BASEMENT DEMOLITION OTHER DISCIPLINES PLAN – AREA B	010
XD101	OVERALL FIRST FLOOR DEMOLITION OTHER DISCIPLINES PLAN	010
XD101A	PARTIAL FIRST FLOOR DEMOLITION OTHER DISCIPLINES PLAN – AREA A	010
XD101B	PARTIAL FIRST FLOOR DEMOLITION OTHER DISCIPLINES PLAN – AREA B	010
XD102	OVERALL SECOND FLOOR DEMOLITION OTHER DISCIPLINES PLAN	010
XD102A	PARTIAL SECOND FLOOR DEMOLITION OTHER DISCIPLINES PLAN – AREA A	010
XD102B	PARTIAL SECOND FLOOR DEMOLITION OTHER DISCIPLINES PLAN – AREA B	010

X100	OVERALL BASEMENT OTHER DISCIPLINES PLAN	100
X100A	PARTIAL BASEMENT OTHER DISCIPLINES PLAN – AREA A	100
X100B	PARTIAL BASEMENT OTHER DISCIPLINES PLAN – AREA B	100
X101	OVERALL FIRST FLOOR OTHER DISCIPLINES PLAN	100
X101A	PARTIAL FIRST FLOOR OTHER DISCIPLINES PLAN – AREA A	100
X101B	PARTIAL FIRST FLOOR OTHER DISCIPLINES PLAN – AREA B	100
X102	OVERALL SECOND FLOOR OTHER DISCIPLINES PLAN	100
X102A	PARTIAL SECOND FLOOR OTHER DISCIPLINES PLAN – AREA A	100
X102B	PARTIAL SECOND FLOOR OTHER DISCIPLINES PLAN – AREA B	100
X401	OTHER DISCIPLINES ENLARGED PLANS	400
X501	OTHER DISCIPLINES DETAILS	500
X601	OTHER DISCIPLINES SCHEDULES	600
X901	OTHER DISCIPLINES 3D PERSPECTIVE VIEWS AND RENDERINGS	900