BUILDING INFORMATION MODELING SPECIFICATION

Part 1 – GENERAL

1.1 Summary

A. The primary objective is an implemented process focused on the development, use and transfer of the digital information model of a building project in order to improve the design, construction and operations of a project or portfolio of facilities.

B. The required BIM Uses are as follows but not limited to:

1. Project Delivery: OCTPD
   (a) Design Authoring
   (b) End User Visualization
   (c) Existing Conditions Modeling
   (d) Construction & Spatial 3D Coordination
   (e) BIM Linkage for 4D Sequencing and Schedule for Project Coordination and Controls
   (f) BIM As-Built Deliverable Requirement
   (g) Facility Management: Warranty, Operations and Maintenance Data
   (h) Facility Management: Space Management/Tracking
   (i) Facility Management: Fire/Life Safety data parameters

2. Project Delivery: Design-Bid-Build with Construction Manager
   (a) Design Authoring
   (b) End User Visualization
   (c) Existing Conditions Modeling
   (d) Construction & Spatial 3D Coordination
   (e) BIM Linkage for 4D Sequencing and Schedule for Project Coordination and Controls
   (f) BIM As-Built Deliverable Requirement

3. Project Delivery: Design-Bid-Build with General Contractor
   (a) Design Authoring
   (b) End User Visualization

C. Other potential BIM Uses are as follows but not limited to and shall be discussed as a team and agreed upon prior to project kick-off.

1. Potential Uses:
   (a) Pre-Fabrication
   (b) Cost Estimating (5D)
   (c) Graphical progress reporting systems
   (d) Maintenance Management
   (e) Lighting and Energy Analysis
1.2 Definitions

A. 3D – three dimensional; objects that include width, depth and height

B. 3D Coordination – analysis to check for interferences between one or many models

C. 4D – the addition of Time to a three dimensional object

D. 5D – the addition of Cost to a three dimensional object

E. 6D – the addition of Life-Cycle Facilities Management to a three dimensional object

F. Building Information Modeling (BIM) – An integrated process aimed at providing coordinated, reliable information about a building project throughout different project phases

G. BIM Implementation Plan – a framework that will let the project team deploy building information modeling (BIM) technology and best practices on a project faster and more cost-effectively

H. COBIE - Construction Operations Building Information Exchange

I. Design Intent Models – models created by the design team to describe the owners project objectives and requirements including but not limited to:
   1. Architectural
   2. Structural
   3. Mechanical
   4. Electrical
   5. Plumbing
   6. Information Technology

J. Level of Development (LOD) – the level of completeness to which a Model Element is developed; the amount of detail in and the level of data tied to a modeled element

K. Life-cycle – Earliest conception of a building to its demolition
Part 2 – DELIVERABLE

1.3 Transferring of Information

A. All Design Intent models are to be submitted to the Owners BIM Facilitator with each scheduled deliverable including but not limited to SD, DD and CD phase deliverables

1. Model will be reviewed for the following but not limited to:
   (a) LOD information matching what is specified in the BIM Implementation Plan
   (b) Cleanliness of model
   (c) Accuracy of modeled elements
   (d) Model Warnings

B. All Design Intent models are to be handed over to the CM and the Owners BIM Facilitator within fifteen (15) days of bids being awarded

1. All information to date including any addenda content is to be incorporated in the models by the design team before model handover

C. 3D Coordination Meetings

1. Owners BIM Facilitator will provide oversight and compliance assistance with the 3D Coordination process outlined in BIM Implementation Plan
2. The Mechanical Contractor will prepare models for the 3D Coordination meetings
3. CM will be responsible for 3D coordination meeting management
4. Attendees should include but are not limited to:
   (a) CM
   (b) Contractors
      (i) MEP
      (ii) Fire Protection
      (iii) Pneumatic Tube
      (iv) IT
   (c) Design Team
      (i) Architect
      (ii) Engineers
   (d) Owners BIM Facilitator

5. 3D Coordination Meetings shall occur regularly and in accordance to what is defined in the BIM Implementation Plan, by necessity of the project and the team.

D. All models to be used during the coordination meetings are to be uploaded to the approved file sharing site one day prior to the coordination meetings as both an .NWF and Native file format, this includes but is not limited to:
1. Fabrication Models
2. Coordination Models
   (a) Mechanical
   (b) Electrical
   (c) Plumbing
   (d) Fire Protection
   (e) Pneumatic Tube

E. The Architect shall copy the Owners BIM Facilitator on all approved submittals when they are returned to the Construction Manager

1.4 Responsibility

A. Models throughout design process
   1. Design team is responsible for maintaining their respective design intent models throughout the design phases
      (a) Including but not limited to:
         (i) Design assist information incorporation
         (ii) Owner supplied data

B. Models throughout construction
   1. For requirements of the upkeep of the design models throughout construction refer to the BIM Implementation Plan.
   2. Contractors are responsible for incorporating information into the Construction, Fabrication and Coordination Models
      (a) Information to include but not limited to:
         (i) RFI Responses
         (ii) Change Orders
         (iii) Bulletins
         (iv) 3D Coordination - interference detection resolutions

3. Architect, Structural Engineer and Contractors will assist the Owners 4D Scheduling Representative with appropriate and timely model information in accordance with the Project Control, Performance Measurement and Diagnostic Program Specification.

C. Facilities Management BIM Requirements
   1. For requirements throughout construction refer to the BIM Implementation Plan.

1.5 Software

A. Software requirements are as follows unless written approval to vary is provided by the Owners BIM Facilitator
   1. Design Intent Models shall utilize the latest version of Autodesk Revit
   2. Coordination Models shall utilize the latest version of Autodesk Navisworks and Revit