EXHIBIT 6
90-24-176-ROQ

Appendix 2 -- Building Information Modeling (BIM) Requirements

ARCHITECTURAL/ENGINEERING CONSULTANT BUILDING INFORMATION MODELING REQUIREMENTS

A. **CONTENTS**

B. **GENERAL DESIGN REQUIREMENTS**

1. Valleywise Health is requiring the utilization of BIM to the greatest extent practical. The intent is to have a shared master 3D model that contains all of the building and/or site information together (including all design attribute information), enabling Valleywise Health to ultimately utilize BIM as a facility management tool at the conclusion of construction.

2. The design team, including architecture, fixed and/or significant medical equipment, FF&E and all engineering disciplines, will utilize Building Information Modeling (BIM) to develop a building and site model to Level of Development (LOD) 300 as defined by The American Institute of Architects with the following exceptions:

   a. Landscape and irrigation.
   b. Certain electrical elements.

   Specific modification to the modeling requirements may be made thru the approved BIM Execution Plan.

   This project shall adhere to the following requirements:

   a. BIM elements and objects created with approved software must fully comply with the requirements of this section.
   b. Any CAD elements and objects shall be developed in 3D CAD systems that can be imported into the collaboration software for visualization and clash detection.
   c. Any CAD elements and objects shall have object data provided utilizing separate spreadsheet systems. Each object shall have a unique identifier (UID) provided that matches (or links to) the data in the spreadsheet.

3. The use of parametric and object based Building Information Modeling (BIM) software shall be utilized as the primary tool for developing design and producing Contract Documents. The BIM shall be used for all site and building systems design, development and analysis, including but not limited to architectural, structural, mechanical, electrical, low voltage, plumbing, fire systems, fixed and/or significant medical equipment and FF&E, etc.

a. The "Model(s)" created for this Project is (are) the property of Valleywise Health, and shall be utilized for the design, construction and facilities management applications of this Project as well as future phases work. Valleywise Health owns all rights for use of this model in the delivery of this Project.

4. The Consultant team shall work together with Valleywise Health's representative to agree on a BIM execution plan (BEP). This plan will contain the details of each Project participant's responsibilities and contributions to the BIM process throughout Project delivery including the possibility of contractor or subcontractor input to and/or development of a construction phase Model. The consultant team shall provide fully utilizable copies of their most current model(s) at each design progress milestone.

5. Valleywise Health's representative may conduct review meetings during development of each submittal prior to Consultant submitting 100% Design Drawings, Intermediate Construction Documents (50% CDs), 100% Construction Documents, Backcheck Submittal and Final Construction Drawings. The intent of the meeting(s) is to review the model to verify model completion status before the model and the hard copy drawings (model views) are formally submitted for review, confirm that corrections/revisions have been incorporated, and to expedite the submittal and review process. These review meetings may include collaborative work sessions utilizing live model views and virtual mockups.

6. Prior to each design submittal, check the model for technical accuracy, incorporation of all Design Review Comments and Valleywise Health authorized design changes, coordination within and between design disciplines. Provide Equipment Coordination Drawings and clash detection reports utilizing Navisworks or approved software compatible with Autodesk Revit Architecture. Valleywise Health's representative will review the model for conformance to the program. After the review has been completed, a Design Review Comment Report will be prepared and provided to Consultant.

7. At the completion of the Consultants Work, the Design Professional's Model(s) shall be transferred to Valleywise Health for Valleywise Health exclusive rights to the Transferred Model(s).

C. SUMMARY OF BIM SERVICES

1. Develop and submit for approval a Federated Model (Fed Model) of the Project utilizing a Building Information Modeling (BIM) system as defined by this Section.

   a. Create and submit a BIM Execution Plan (BEP) as described herein.
   b. Develop the design for the Project in compliance with this Agreement.

   c. Develop the Consultant's Fed Model throughout the Design and Documents Phases of the Project.

   d. Transfer a copy of the Federated Model and native consultant models, with any linked CAD files, to Valleywise Health at the completion of Construction Documents and to the contractor for their reference and/or utilization.

   e. The Architect is not responsible for the review of the Contractor's development of their Fed Model progressively throughout the construction phase.

D. DEFINITIONS

1. <u>As-Built Fed Model</u>: A Federated Model incorporating all construction phase modifications to a LOD 400 or better.

2. <u>Bid Model</u>: The term used to describe the Consultant's if such a model is established as part of the Contract Documents.

3. <u>BIM</u>: Building Information Modeling is a process of generating and managing building data (3D geometry, dimensions, nomenclature, element specifications, material, equipment type, etc.) utilizing a modeling software that is a fully object-based, parametric, database.

4.   <u>BIM Manager</u>: The individual responsible for managing the Consultant's modeling and coordination process, including managing the Consultant's BIM Staff and all other aspects of the Consultant's BIM requirements.

5.   <u>A/E Share Site</u>: The server or web-based system where all models and pertinent data shall be hosted for sharing and storing during the Design and Construction phases of the Project.

6.   <u>Collaboration Model</u>: The term to describe the Federated Model used during the trade coordination phase.

7.   <u>Design Model</u>: The model that was established by the architect and engineering team as part of the Bid Documents. This model may be relied upon by the Contractor as a reference only.

8.   <u>Model</u>: The term used to describe the 3D virtual representation of a project and its Objects.

9.   <u>Model Element</u>: A Model Element is a portion of the BIM representing a component, system or assembly within a building or building site.

10.   <u>Model Element Author</u>: The Model Element Author (MEA) is the primary party who shall develop the content of a specific Model Element to the LOD listed for a particular phase of a project.

11.   <u>Facility Model:</u> A 3D model that incorporates all major equipment and components that require service and maintenance; used primarily for operations and maintenance.

12.   <u>Federated Model</u>: The Federated Model (Fed Model) combines different modeled elements or assemblies through the process of linking files from their native platforms, maintaining their native properties. It is a virtual representation of an entire project.

13.   <u>Level of Development (LOD)</u>: The term used to describe the fullness and definitiveness of the Model. The LOD definition is based on the AIA *E 202 – 2008* document with any Project-specific requirements as contained herein.

14.   <u>Linking Files</u>: A process of externally referencing a Native Model into the Federated Model.

15.   <u>Native Model</u>: A Model created in a specific 3D parametric modeling software platform. For example, a model made in Revit.

16.   <u>Object</u>: The term used to describe the 3D virtual representation of each of the separate sub-parts of Model such as doors, walls, building fixed and/or significant medical equipment and general equipment etc. If an Object is, in itself, comprised of several sub-elements, the sub-elements shall be grouped into one virtual representation of that Object.

17.   <u>Room</u>: The term used to describe any space within the enclosing walls of the building. The space may be rectangular or more complex. In the case of complex-shaped spaces, the complex space may be sub-divided into several sub-spaces that are separated by Room Separation modeling techniques. Such sub-spaces shall function as individual Rooms with individual parametric attributes. Examples include without limitation: a long corridor that is best described by its sub-areas; an alcove or foyer adjacent to and serving another space; a large multi-function space that contains several sub-areas or work stations that require individual designation; etc.

18.   <u>Transferred Model</u>: The term used to describe the Native Model(s) and/or Federated Model that are/is provided to Valleywise Health for Valleywise Health's agreed utilization.

E.   USE OF THE FEDERATED MODEL

1.   The Fed Model shall be developed for finalizing the design, engineering analysis, trade coordination, and as-built reference. The Fed Model shall be a reference source for communication and collaboration throughout each phase of the Project

General Conditions

      2.   The Fed Model may vary in level of detail for individual elements, but at a minimum shall include sufficient data to support use and analysis of:

          a.   Functional and visual representation of all spaces.

          b.   Constructability review of Consultant's documents.

          c.   Clash detection and correction of all major systems.

          d.   Energy and sustainability analysis

          e.   As-built documentation and modeling. The Design team will utilize the General Contractor's redlined as-built construction documents to modify the Revit model into the final Record model.

          f.   Fixed equipment

          g.   3D for heavy equipment rooms

      3.   The Construction Documents (drawings and specifications) shall be derived from information from the Fed Model described herein. If any or all of the Consultant's Models are available for use by the Contractor in developing their Fed Model, such usage shall be for reference only.

          a.   The Contract Documents (drawings and specifications) are not intended to be modified by the Fed Model.

          b.   Any changes to the Fed Model, once Construction Documents have been approved shall be archived in the Project-defined file storage system.

          c.   All changes to the Fed Model, subsequent to completion of the Work, including additional modeling by others, shall be solely the responsibility of the entity providing the changes or additions.

      4.   At the completion of the Consultant's service, the Fed Model shall be turned over to the Valleywise Health. Valleywise Health shall have exclusive rights to the Model for their use as:

          a.   Editable Models for future expansion or remodel projects. For such purposes, Consultant shall provide exports of the Fed Model in 2D AutoCAD formats as required by Valleywise Health.

          b.   As a 3D user interface and source of data in operating and maintaining the facility.

      5.   <u>Input from Consultant to Contractor</u>: Consultant shall be available to respond to questions from the Contractor and shall provide answers, clarifications and interpretations of their documents. The normal Request For Information (RFI) process shall be followed.

F.   BIM MANAGER and STAFF

      1.   Provide a qualified BIM Manager and staff to manage the BIM process and develop the required BIM Execution Plans (BEP). The Design BIM Manager shall be responsible for overseeing development of all submittals generated from BIM data, and managing the coordination process including:

          a.   Managing the information of the Consultant and sub-consultants responsible for creating Models, analyzing "clashes" and resolving coordination issues.

G.   BIM SHARE SITE

      1.   Provide and maintain an A/E Share Site to host all BIM Models and files. Models on this shared site shall be fully accessible on line to all members of the Design team, including Valleywise Health's Representative. The Consultant's BIM Manager shall:

          a.   Assign site users and passwords.

b.   Submit updates to the site per the BEP.

c.   Coordinate and approve the BIM information that is updated into the shared site.

d.   Monitor usage and ensure capacity and function of this system.

e.   Administer read/write rights and hierarchy to support revision control utilizing a system to be selected by the Architect.

H.   BIM EXECUTION PLAN (BEP)

1.   Develop a BIM Execution Plan (BEP) as part of the required BIM services.

2.   Draft BEP: the draft BEP shall include:

a.   Proposed BIM staff for the design team and the sub-consultants.
b.   Software selections as defined in this Scope.
c.   Schedule of BIM activities and deliverables.
d.   Schedule of submittal milestones during design and construction.
e.   File Folder structure per Valleywise Health Facilities.
f.   File Naming system per Valleywise Health Facilities.
g.   Hardware and Software for access BIM Share Site.
h.   Responsibilities of all BIM staff.
i.   The origin point for the Project. All Models must be in the correct location in 3D Space (x, y, and z coordinates). This includes correct floor elevation(s).
j.   Modeling minimum Level of Development (LOD) for all disciplines as required by this Scope.

NOTE: The Draft BEP shall be developed and submitted within 21days of the signed Agreement.

3.   Final BEP: Based on acceptance of the Draft BEP, the Consultant shall develop its Final BEP and submit it to Valleywise Health's Representative for review and acceptance.

I.   NATIVE MODEL SOFTWARE - MINIMUM REQUIREMENTS

1.   General: The Native Model(s) shall be developed to include parametric components of major building and site elements as defined in this Section. All discipline Native Models shall be linked to the Architectural Native Model.

2.   BIM application(s) and software(s) for reviewing the Fed Model shall be selected by the Architect to accomplish their internal clash detection. The following software are acceptable for use by the Consultant(s): Current Autodesk BIM 360 Family of products i.e. Field, 360 Glue, or Navisworks.

3.   The Native Model software shall be as listed in the following matrix. The first software listed for each discipline is preferred. The software shall be fully object-based, parametric, database system, and shall be the most current version available at the start of **Work** on the Project. Any software submitted for use must support the BIM Requirements listed in this document and the resulting functions of the BEP.

Recommended Native Model Software Matrix		
Discipline	Native Model Software	Comments
Architectural	Revit Architecture	

Fixtures, and Equipment	Revit Architecture	Applies to stationary items only
Structural	Revit Structure	
HVAC	Revit MEP AutoCAD MEP CAD-Duct	
Plumbing	Revit MEP AutoCAD MEP CAD-Pipe	
Fire Protection	Auto SPRINK	
Electrical	Revit MEP AutoCAD MEP	
Security Electronics	Revit MEP AutoCAD MEP	
Civil	AutoCAD Civil 3D Land Development Desktop	
Landscape	Revit Architecture or AutoCAD	

J.   OBJECT IDENTIFICATION - NOMENCLATURE

1.   Every Object in the Model shall have a Unique Identification (UID) parameter and a Common Name parameter attached to it in the Native Model. This is required at all LOD levels.

   a.   The UID may be in the form of alpha, numeric, or alpha-numeric.

   1.   If the UID form is alpha-numeric, it shall be a consistent string format for all Objects, within its discipline, and shall be readable by any commonly available database. The UID is an "Instance" parameter.

   2.   If the Native Model software is not a full Object-based, parametric, database platform, such as some of the 3D CAD programs, the UID shall be attached to the Object manually, if necessary, so that it can be read by the user without additional software applications.

   3.   The UID can be automatically generated or manually assigned and shall adhere to pre-established nomenclature,

   b.   A "Common Name" naming convention shall be a parameter in the Native Models. Examples of a Common Name include such as: door, window, toilet, VAV Box, etc. Typically the Common Name will be generated automatically by the software, but if not, it shall be input manually in the Native Model. The Common Name is an Object "Type" parameter

   c.   Uniformat Classification.

K.   OBJECT ASSOCIATION

1.   Every Object in the Model shall be associated with either a Room or a Floor and shall have an association "Instance" parameter attached to it in the Native Model.

  2. <u>Room association</u>: Any Object that will be visible in a Room of the completed Project shall be associated with that specific Room. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical switches and outlets, electrical switch gear and panel boards, plumbing equipment and fixtures, access panels to concealed Objects, cabinets, doors and frames, wainscot, light fixtures, HVAC supply and return grilles, fire sprinkler heads and valves, etc.

  3. <u>Floor association</u>: Any Object that will be concealed in a wall or interstitial space (but would be visible if the finish surface or item was non-existent) shall be associated with the specific Floor level that it is within. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical conduit, plumbing piping and valves, HVAC supply and return ducts, HVAC equipment, fire sprinkler lines and valves, etc.

  4. <u>Objects extending beyond Room boundaries</u>: Floors, walls, and/or ceilings are sometimes modeled as objects that extend beyond individual Room boundaries. Where this occurs, the architectural discipline Native Model shall be modeled as follows:

    <u>a.</u> <u>Floors</u>: Structural floor Objects may extend beyond Room boundaries, however, finish flooring such as carpet, resilient flooring, etc., shall be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.

    <u>b.</u> <u>Walls</u>: Structural wall and non-structural partition Objects may extend beyond Room limits, however, the surface material such as gypsum wallboard, wall covering, etc., shall be modeled as Objects, or scheduled in the Room Finish Schedule, with extents contained within the Room boundaries, and with appropriate Room association.

    <u>c.</u> <u>Ceilings</u>: Structural ceiling Objects may extend beyond Room limits, however, finish surface material such as gypsum wallboard, acoustical ceiling tiles, etc., shall be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.

L. SYSTEM DISCIPLINE MODELS

  1. <u>Civil Systems</u>: The Civil Systems Model shall be a sub-system Model linked to the Architectural System Model. Provide Model Objects of:

    a. Topography: 1) existing natural and/or graded contours, and 2) new grades and finish contours.

    b. Planting: 1) existing major landscaped areas, 2) existing trees to remain, 3) new landscaped areas, 4) new trees, and 5) irrigation lines over 2" diameter.

    c. Surface Improvements: 1) pavements, 2) curbs and gutters, 3) retaining walls, and 4) exterior non-building structures such as pools, shade structures etc.

    d. Existing Structures: 1) all buildings within the Project area intended to remain, 2) buildings intended to be demolished. All existing structures may be modeled exterior surface only; interior elements are not required.

    e. Storm Water and Sanitary Sewers: 1) existing lines (over 3" diameter), boxes and structures within project area, 2) all new lines, boxes and structures, and 3) existing public lines, boxes and structures beyond the project area but serving as points of connection for the project.

    f. Utilities: 1) existing domestic and fire water main and branch lines (2" and larger diameter) within Project area, 2) all new domestic and fire water lines, 3) existing electrical overhead and underground lines within project area, all new electrical lines outside buildings, 4) existing telephone and data lines within Project area, 5) all new telephone and data lines outside buildings, 6) existing gas lines within project area, and 7) all new gas lines outside buildings.

    g. Other requirements:

1. Quantities: data to reflect accurate quantities of the above elements.

2. Schedules: data for installation of the above elements.

2. <u>Architectural Systems</u>: The Architectural Systems Model shall be the primary Model to which others are linked. The architectural systems model shall serve as the basis for the project shared coordinates through which the position of building elements on the site will be coordinated. Provide model Objects of:

   a. Spaces: 1) net square footage of all occupied spaces, 2) gross constructed floor area, 3) room names and numbers, and 4) floor, base, wall, and ceiling finishes. NOTE: Model room names and numbers shall match Valleywise Health's Architectural Program space names and numbers.

   b. Exterior Walls and Curtain Walls: 1) type and composition, 2) height, length, and width, and 3) thermal, acoustic, fire, and security ratings.

   c. Partitions: 1) type and composition, 2) height, length, and width, and 3) thermal, acoustic, fire, and security ratings.

   d. Floors: 1) type and material, 2) thickness, and 3) finishes with manufacturer's name and product numbers. Link floor structure to the Structural Systems Model.

   e. Ceilings: 1) type and composition, 2) height, length, and width, and 3) thermal, acoustic, fire, and security ratings.

   f. Roof Coverings and Openings: 1) configuration, 2) drainage system, and 3) penetrations for modeled building components.

   g. Exterior Doors, Windows, and Louvers: 1) type and material, 2) height, width, and thickness, 3) thermal, acoustic, fire, and security rating, 4) location, and 5) hardware elements or group.

   h. Interior Doors, Windows, and Louvers: 1) type and material, 2) height, width, and thickness, 3) thermal, acoustic, fire, and security rating, 4) location, and 5) hardware elements or group.

   i. Stairs and Ramps: 1) stairs and railings, 2) ramps and railings, and 3) handrails and guardrails.

   j. Elevators and Escalators: 1) elevator cabs and doors, 2) elevator hoist-way doors and trim, 3) elevator machinery and equipment, 4) escalator belts and railings, and 5) escalator machinery and equipment.

   k. Casework and Counters: 1) type and material, 2) height, width, and depth, 3) location, and 4) hardware.

   l. Plumbing Fixtures: 1) type and material, 2) location, 3) trim, and 4) finishes. Link fixtures and trim to the Mechanical Systems Model.

   m. HVAC Grills and Registers: 1) type and material, 2) location, 3) trim, and 4) finishes. Link fixtures and trim to the Mechanical Systems Model.

   n. Miscellaneous Fittings: 1) toilet partitions, 2) toilet room accessories, 3) grab bars, 4) personal storage lockers, 5) display cases, and 6) other surface applied quasi-permanent items such as mirrors etc.

   o. Major fixed and/or significant medical equipment.

   p. Quantities: data to reflect accurate quantities of the above elements.

   q. Schedules: data for installation of the above elements.

3. <u>Structural Systems</u>: The Structural Systems Model shall be a sub-system model linked to the Architectural System Model. Provide model Objects of:

   a. Foundations and footings: 1) type and configuration, and 2) depth, length, and width.

    b.   Slab(s) on-grade: 1) type and configuration, 2) under-slab base and waterproofing, 3) recesses, curbs, pads, closure pours, and 4) major penetrations.

    c.   Basement Walls: 1) type and composition, 2) height, length, and width, and 3) thermal, acoustic, fire, and security ratings.

    d.   Elevated Floors: 1) columns and beams, 2) primary and secondary framing members, 3) bracing, 4) connections, and 5) framed, composite, and/or slab decks.

    e.   Roofs: 1) columns and beams, 2) primary and secondary framing members, 3) bracing, 4) connections, and 5) framed, composite, and/or slab decks.

    f.   Joints: 1) expansion and/or contraction, and 2) seismic.

    g.   Stairs and Ramps: 1) openings and framing, and 2) railing supports.

    h.   Shafts and Pits: 1) openings and framing, and 2) railing supports.

    i.   Other requirements:

        1.   Quantities: include data to reflect accurate quantities of the above elements.

        2.   Schedules: data for installation of the above elements.

        3.   Fireproofing: Fireproofing is not to be included in the BIM but clash detection studies shall include definition of tolerances for conflict detection.

        4.   Color Code: color code structural steel from other elements.

4.   <u>Mechanical</u>: The Mechanical Systems Model shall be a sub-system model linked to the Architectural System Model. Provide model Objects of:

    a.   Heating, Ventilating, and Air Conditioning: 1) all heating, ventilating, air-conditioning, exhaust fans, and specialty equipment, 2) air supply, return, ventilation and exhaust ducts, including space-consuming elbows and transitions, 3) fire dampers with ratings, 4) mechanical piping, and 5) registers, diffusers, grills and hydronic baseboards. Coordinate and link fixtures and trim to the Architectural Systems Model.

    b.   Plumbing: 1) all domestic plumbing piping and fixtures, 2) floor and area drains, 3) valves (regardless of pipe size) and 4) related equipment.

    c.   Piping larger than 1 .5" diameter shall be modeled.

    d.   Roof Drainage: 1) all piping and fixtures, and 2) related equipment.

    e.   Piping larger than 1 .5" diameter shall be modeled.

    f.   Other requirements:

        1.   Quantities: data to reflect accurate quantities of the above elements.

        2.   Schedules: schedule data for installation of the above elements.

        3.   Equipment Clearances: Clearances for major equipment and all M/E/P Equipment and Architecturally Significant Specialty Equipment, as model objects for conflict detection and maintenance access requirements.

        4.   Color Code: separate color code for each type element.

        5.   Medical Gasses

5.   <u>Electrical</u>: The Electrical Systems Model shall be a sub-system Model linked to the Architectural System Model. Provide Model Objects of:

      a.   Interior Electrical Power and Lighting: 1) all interior electrical components, 2) lighting, receptacles, special and general purpose power receptacles, 3) lighting fixtures, 4) panel-boards and control systems, and 5) conduit and cable trays.

          1.   Individual conduit larger than 1 .5" diameter shall be modeled.

          2.   Groups or clusters runs, and cable trays of conduit of all sizes shall be modeled.

      b.   Exterior Building Lighting: 1) all exterior electrical components, 2) lighting, receptacles, special and general purpose power receptacles, 3) lighting fixtures, 4) panel-boards and control systems, and transformers, and 5) utility connection and equipment.

          1.   Individual conduit larger than 1 .5" diameter shall be modeled.

          2.   Grouped or clustered runs of conduit of all sizes shall be modeled.

      c.   Telephone, Data, Television, and Other Low Voltage: 1) all interior low voltage components, 2) outlets, receptacles, special and controls, 3) fixtures, 4) panel-boards, equipment racks, and control systems, and 5) conduit and cable trays.

          1.   Individual conduit larger than 1 .5" diameter shall be modeled.

          2.   Groups or clusters runs of conduit of all sizes shall be modeled.

      d. Other requirements:

          1.   Quantities: data to reflect accurate quantities of the above elements.

          2.   Schedules: schedule data for installation of the above elements.

          3.   Equipment Clearances: Clearances for major as Model objects for conflict detection and maintenance access requirements.

          4.   Color Code: separate color code for each type element.

          5.   Emergency lighting

          6.   Medical gasses

          7.   Emergency generator

6.   <u>Specialty Equipment</u>: The Specialty Equipment Model shall be a sub-system Model linked to the Architectural System Model. Specialty Equipment includes without limitation such specialties as: medical equipment and systems, security equipment and systems, conveyance equipment and systems, manufacturing equipment and systems, etc. Provide model Objects of:

      a.   Specialty Equipment: 1) equipment 2) related mechanical, plumbing, and electrical requirements.

          1.   Quantities: data to reflect accurate quantities of the above elements.

          2.   Schedules: schedule data for installation of the above elements.

          3.   Equipment Clearances: equipment clearances as Model objects for conflict detection and maintenance access requirements.

M.   DEVELOPMENT AND SUBMITTAL OF THE MODELS

1. Develop the Fed Model and its discipline systems Native Models (section 1.11 system discipline models above) in compliance with the Agreement Documents and the following:

    a. Meet on a regular basis with Valleywise Health, and Valleywise Health's Representative to develop the design of the Project. The meetings shall be working sessions optimizing BIM's
        collaboration, visualization, and information technology through "live" model utilization if necessary. Model views will be generated as necessary to convey to Valleywise Health proposed design solutions.

2. PRELIMINARY/SCHEMATIC DESIGN

    a. Consultant shall prepare and submit a Model meeting the specific program and operational requirements of the Project. Provide a building and site massing Model. Show existing critical site elements and buildings massing.

    b. This final model shall be the basis for further development of the model as specified below.

        1. The Model shall contain a minimum LOD 100 sufficient to display the conceptual layout of the building and its relationships.

            (i) Provide exterior 3d views including critical spaces, such as entrances and exits.

            (ii) Provide massing of any adjacent buildings or other critical elements on site.

            (iii) Provide 2D AutoCAD exports to Valleywise Health as required.

3. DESIGN DEVELOPMENT (DD) DOCUMENTS

    a. Prepare and submit a model at 100 % DD, showing room areas, heights, and finishes, and addressing environmental conditions, building services, lighting, and security requirements.

    b. Develop the base building and site Model including all systems and elements to the LOD 200 and as otherwise noted herein. All sub-consultants shall be utilizing the base Model in their DD submittal.

    c. All walls, floors, ceiling and roof planes shall accurately show thickness, window sizes and wall placement shall be shown, structural elements, mechanical duct work supply and return lines, and plumbing chases, major electrical components including lighting. Floor and roof structures shall be shown as the actual make up of structural system including all layers and materials.

    d. Model a complete holding cell including windows, doors and all fixed furniture, plumbing, mechanical, fire sprinklers, and light fixtures. Show interior plumbing chase layout and mechanical system/supply ductwork and return air plenum or interstitial space. This portion of the Model shall be to LOD 300

    e. Exterior of Model shall show window and door locations, adjacent buildings and path of travel to new building. Staff entrances, loading docks and Site Improvements shall also be shown.

4. CONSTRUCTION DOCUMENTS (CD) PHASE

    a. The Work during this phase shall include completion of the design phase Models for all disciplines to LOD 300.

        1. Prepare and submit updated Models at the 50% CD and 100% CD submittals. Provide 2D AutoCAD exports to Valleywise Health as required.

2. Review, respond to, and incorporate all design directives, control agency General Conditions comments, into the Model and all appropriate documents. All changes that are incorporated into the Model and the documents shall be fully coordinated between all disciplines.

3. Provide evidence of interdisciplinary coordination at the floor planes, ceiling planes, and roof plane showing such elements as:

Floor Planes	Ceiling Planes	Roof Plane
Plumbing fixtures and drains	Lighting fixtures	Roof pavers
Below grade plumbing	HVAC diffusers	HVAC equipment
Foundations	Access panels	Plumbing on or through roof
	Smoke detectors	Electrical on or through roof
		Structural framing

5. CONSTRUCTION ADMINISTRATION (CA) PHASE

a. The A & E team shall continue to use BIM in developing design solutions, responses to RFI's, change orders, etc. as appropriate in communicating with the construction team.

6. SUMMARY OF MODEL DELIVERABLES

a. Provide copies of the Fed Model to Valleywise Health for review and acceptance at the specified schedule milestones as follows:

1. 100% completion of Schematic Design phase
2. 100% completion of Design Development phase.

3. 50% and 100% completion of Construction Documentation phase.

4. 100% completion finalized Construction Documents including pickups and corrections of Jurisdictional review and back-check, and Valleywise Health's constructability reviews. The Federated Model may be made available for use during bidding.

b. Develop and submit to Valleywise Health all of the discipline systems Native Models concurrently with the Fed Model, fully coordinated at the completion of the Construction Documents phase for continued use and development by Valleywise Health and the contractor. Provide 2D AutoCAD exports to Valleywise Health as required.

END OF SECTION