# General

## Summary

* + 1. This Section includes suggested methods for establishing interference and coordination Drawings and documents for the project, including sharing of Building Information Modelling (BIM) Project Files, and is intended to assist with communications management and consistency by establishing protocols, procedures and limitations for the following:
       1. Interoperability, compatibility and formats of system components used to convey information.
       2. Use of BIM Project Files.
    2. Consultant is providing BIM Project Files in native formats where applicable and in generic conversion file using agreed upon generic formats to aid in document production for the convenience of the Contractor, Subcontractors and others contributing to the digital documentation process described in this Section.

## Definitions

* + 1. Contract Documents: Drawings, Specifications and schedules, addenda and bid revisions and other documents issued during the Bid Period and that are listed in the Articles of Agreement in the Contract; BIM Project Files are issued for the convenience of the Contractor and are not Contract Documents.
    2. Building Information Modelling (BIM) Project Files: A virtual representation of the physical and functional characteristics of the project through an accumulation of information at various design and documentation stages of development starting from project inception through to completion.

## Submittals

* + 1. Submit interference and coordination drawings for installation of mechanical and electrical Work, where applicable and all other applicable Divisions for efficient use of available space, for proper sequence of installation, and to resolve conflicts with the work of all Sections.

## Interference and coordination Drawing requirements

* + 1. Coordinate sequencing of Work, placement of Products and arrangement of services of various Subcontractors and Other Contractors to assure the best arrangement of pipes, conduits, ducts, equipment, supports and other items in the available space.
    2. Under no circumstances will any claim for extra cost be allowed due to the failure by the Contractor to coordinate Work.
    3. Prepare interference and coordination drawings, showing the work of various Subcontractors and submit drawings to the Consultant for approval before commencing Work.
    4. Take field dimensions relative to this Work.
    5. Fabricate and erect work to suit field dimensions and field conditions.
    6. Provide all forms, templates, anchors, sleeves, inserts and accessories required to be fixed to or inserted in the Work and set in place or instruct the related Subcontractors as to their location.
    7. Pay any extra costs caused by, and make up time lost resulting from, failure to furnish the necessary cooperation, information or items to be fixed-to or built-in, in adequate time.
    8. Coordinate placement of equipment to ensure that components will be properly accommodated within spaces shown in the Contract Documents prior to commencement of Work.
    9. In areas where equipment and services are exposed exercise care to organize and layout services in an organized and orderly manner.
    10. Where possible services run services parallel or at right angles to one another as required.
    11. Consultant may request that service layout be reconfigured to suit sightline concerns during the interference and coordination drawings review phase. Revise drawings accordingly at no additional cost to the Owner.

# Products

## Documentation

* + 1. BIM Project Files Prepared by Consultant: Consultant has created digital databases, building models, drawings, specifications and other documentation that will be used to communicate the requirements of the project and administer the Contract and will share this information with the Contractor under the following conditions:
       1. Consultant makes no claim as to the accuracy of BIM Project Files or the interpretations made by subsequent developers and contributors to BIM Project Files for their individual contributions; Control of the Work remains with the Contractor in accordance with the General Conditions of the Contract.
    2. Contractor will remain responsible for establishing and confirming site dimensions and project conditions, and resolving constructability means and methods in accordance with the requirements of the Contract Documents.
    3. Contractor accepts that information transmitted by the Consultant represents the current state of BIM Project Files effective at the date the digital file is produced and that the Consultant will not issue updated versions of BIM Project Files except at their sole discretion.
    4. Consultant will not respond to formal Requests for Interpretation (RFIs) relating to BIM Project Files; Consultant will only respond to RFIs relating to Contract Documents.
    5. Contractor, Subcontractors and others will work collaboratively and cooperatively with the Consultant to derive acceptable solutions using informal forms of communications where clarifications to BIM Project Files are required.

# Execution

## Preparation

* + 1. Review of Documents: Information contained in BIM Project Files may change during the evolution of the project as a result of changes made by the Consultant and other contributors to BIM Project Files; It remains the responsibility of the Contractor, Subcontractors, Suppliers, fabricators and manufacturers to confirm that the information they are using is current to the project stage.

## Use of digital BIM documents

* + 1. BIM Project Files of the Consultant: BIM Project Files may be made available to Contractor by Consultant at their sole discretion subject to the following conditions:
       1. Contractor is required to sign the Consultant’s standard terms of usage and digital file acceptance disclaimer.
       2. Contractor is required to provide a list of all Subcontractors that will have access to the BIM Project Files; failure to provide a list of Subcontractors will result in the Consultant withdrawing their offer to share BIM Project Files.
       3. BIM Project Files will be made available at no cost to the Contractor in Revit format software used to prepare BIM Project Files.
       4. BIM Project Files will be provided by DVD or FTP Site, depending on size of BIM Project Files.
       5. BIM Project Files will be provided in the file format used for production of drawings, a change to the version or format will not be undertaken by Consultant; Contractor is responsible to hire an outside service to change documents where formats do not meet their ability to read them.
       6. Direct requests for BIM Project Files from Subcontractors will not be considered by Consultant.
       7. Consultant reserves the right to alter BIM Project Files information not essential to Contract from materials provided to Contractor including the following:
          1. Remove title blocks and logos;
          2. Remove professional seals;
          3. Remove detail components and families;
          4. Bind external files.
    2. Contractor is responsible for coordinating Subcontractor requests for BIM Project Files; Contractor must request BIM Project Files at beginning of Work:
       1. The Contract Documents will govern in the event that there is a discrepancy between BIM Project Files provided to Contractor and Contract Documents.
       2. In the event that dimensions are not indicated, they must not be scaled digitally from BIM Project Files; missing dimensions must be brought to the attention of Consultant, who will determine dimensions or direct method for determination of missing dimensions.
    3. Contractor recognizes that use of BIM Project Files is at their own risk, and that Contractor will be required to sign Terms of Usage indicating acceptable uses that may include the following:
       1. Contractor, Subcontractor, Sub‑Subcontractor, Supplier, manufacturer, or other third-party agent agrees to hold harmless Consultant from any damage, liability or costs arising from the use of BIM Project Files conveyed in file format provided.
       2. Consultant retains the copyright for proprietary information, and unique technical and design methods contained within BIM Project Files created by the Consultant; this content is made available to Contractor for information purposes only.
       3. Use of supplied BIM Project Files for any subsequent Project is strictly forbidden without express written consent of Consultant.
       4. Consultant will not be held liable of any unauthorized use or modification of BIM Project Files provided.
       5. Consultant assumes no responsibility for work produced by the Contractor and Subcontractor’s
       6. Consultant assumes no responsibility and disclaims any liability to any person or entity for any loss or damages including any special, indirect or consequential damages caused by error or omissions in BIM Project Files and format provided, whether resulting from negligence, accident or any other cause.
    4. Consultant reserves the right to withdraw the offer for BIM Project Files for any reason and at any time where an excessive number of requests are made for BIM Project Files or where the Consultant deems that sharing BIM Project Files have the potential to modify design decisions that compromise the Consultant’s responsibilities under the Professionals Act for documents produced under seal by an Architect or Engineer.
    5. Consultant reserves the right to reject shop drawings prepared from BIM Project Files submitted to them by Contractor that have not been substantially altered from BIM Project Files provided, and as follows:
       1. Shop Drawings shall reflect constructability requirements.
       2. Shop Drawings shall be detailed in accordance with requirements listed in technical trade Sections.

## Interference and coordination Drawings – field quality control

* + 1. On interference and coordination drawings, show the following minimum information to demonstrate understanding and coordination of Work of various Sections with the Work of, but not limited to the following:
       1. Mechanical (fire suppression, plumbing, HVAC, building automation).
       2. Electrical (power distribution and generation, lighting, fire alarm, communications, security & access controls, and facility protection).
       3. Piping: indicate sizes, locations and arrangements, including valves, indicating instruments, pumps and other accessories. Allow for thickness of insulation, as specified, for various types of piping.
       4. Ductwork: sizes, locations and arrangement including accessories such as dampers (fire, balancing and operating).
       5. Conduits: show surface-mounted and embedded conduit pipes, elbows, boxes and other accessories for power distribution, power generation, control wiring, fire alarm system, building controls system and other related systems.
       6. Equipment:
          1. Flydronic specialties, boilers, water heaters, chillers, coolers, radiant panels, fan coil units, air handling units, fans, VAV terminal units, etc.
          2. Transformers, power distribution equipment, wiring devices, panelboards, lighting, equipment, fire alarm devices, etc.
       7. Sleeves: Show size and location of penetrations through loadbearing and non-loadbearing elements.
       8. Inserts: Products or elements of assemblies to be cast into concrete and/or mortared into masonry elements.
    2. Show cross-sections in key areas, as required, and as defined by Consultant. Show re-bar, structural elements, piping, air handling and heating systems distribution, sprinkler system distribution, lighting, wall and ceiling assemblies, acoustical and seismic isolation, Products and systems involving life safety, conveying systems, electrical distribution.
    3. Resolve areas of conflict or interference in a mutually agreed manner between affected Subcontractors and Other Contractors and resubmit interference and coordination drawings until such time as accepted by the Consultant.
    4. Submit interference and coordination drawings electronically in .pdf format and Revit “.rvt” files.
    5. Submit interference and coordination drawings in uniform scale, with information assembled on separate layers within the electronic files to allow overlays to be assembled which show all components of various trades. Upon incorporation of details, Drawings shall be submitted jointly to the Consultant for review.
    6. Ensure that accesses and clearances required by jurisdictional authorities and/or for easy maintenance of equipment are indicated and accommodated in layout of equipment and services.
    7. Circulate interference and coordination drawings for review and mark-ups by Subcontractors responsible for work portrayed on the drawings.
    8. Coordinate preparation and submission of interference and coordination drawings with Shop Drawings.

End of section