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**DIVISION 00 – PROCUREMENT AND CONTRACT REQUIREMENTS****00 00 00 – Procurement and Contracting Requirements**

1. General Conditions
  - a. Reference Procurement website, Construction Documents, <https://www.rit.edu/fa/procurement/construction/constructiondocs.html>
  - b. Consultants working at RIT must be pre-qualified and entered into the Approved Vendor List at Facilities Management Services (FMS). Application/information forms are available in hard copy or electronic format and will be sent to interested vendors upon request.
  - c. This guideline is for both new construction and renovation work. Please review the renovation projects in GREAT detail before you provide a proposal. The upfront field work required needs to be addressed.
  - d. While many parties may be involved in RIT construction projects, RIT FMS is the authoritative client for all projects. Suggestions, directions, needs, etc. which are raised by others during design phase work or construction phase work are not to be acted upon without approval of the designated Project Manager assigned by FMS to the job.
  - e. RIT recognizes that sustainability is a concept that seeks to provide the best outcomes for human and natural environments by meeting the needs of the present generation without compromising the ability of future generations to meet their needs. Whenever possible the University attempts to foster sustainability. Include sourcing products that can be recycled or are biodegradable and that contain less toxic and hazardous chemicals and additives; source reduction; and solid waste reduction as well as purchasing local goods that are grown in environmentally sound ways or buying products through systems that produce the least amount of environmental pollutants. The University desires that the Provider foster sustainability and partner with the University in the expanding areas of sustainability.
  - f. RIT new buildings may be capable of LEED certification, but the University shall not pursue on all projects. Verify requirements with Project Manager.
  - g. We encourage our design consultants to apply a universal and inclusive design approach to ensure that our facilities are accessible to the entire community that RIT serves. In addition to accommodating the general public, RIT's community includes students with a variety of special needs. It is important to our campus that this approach include any accessibility requirements set forth by state building codes; and since we are a 'place of public accommodation', that all ADA requirements be adhered to, as required by the Federal government. **Note that the needs of the diverse RIT community may exceed statutory requirements in some cases.** In addition, for some projects, focus groups may be created to review the design to ensure that we do not install textures and colors that produce visual contrast issues for specific segments of the RIT community.
  - h. Contractors are required to review and understand the sections of this document related to their work.
2. RIT Owner-Architect Agreement and RIT General Conditions of the Contract
  - a. These requirements do not supersede any requirements put forth in the standard contract language or general conditions.
  - b. A/E firm is responsible to review this document in detail, and discuss any concerns with FMS.
  - c. Contractors should raise any questions or concerns before work is bid.
  - d. Successful bidders shall confirm that their proposed methods meet these guidelines prior to installation.
3. Drawings/Specifications
  - a. A/E and Contractors are required to follow the Project Record Documents and CAD Specifications per Appendix 1.
  - b. A/E is required to provide a code compliance plan to include but not limited to: fire extinguishers, occupant load, travel distance, and construction type.
  - c. A/E is required to provide a sign placement plan (all signage details are RIT standards) showing location of equipment and hazards, in accordance with Chapter 5 of the Fire Code of NY State and showing accessibility signage in accordance with Section 1110 of the Building Code of NY State. Room signs are not required to be indicated.
  - d. A/E is required to work directly with the temperature control group and:
    - i. Provide a detailed points list using the RIT points list template.
    - ii. The temperature control specifications must be incorporated in the project specifications. FMS controls shall provide their latest version of the TC specification.
    - iii. Complete set of the sequences of operation must be developed for the project.
    - iv. Design team shall include all CAD drawings developed by the FMS Controls Department, as pertinent to the project.
    - v. Section 4 (scope) of the TC specification shall be revised for each project.

- e. RIT is working on standard specifications and details. A/E firm is required to meet with FMS to understand the latest specific requirements. RIT requires the record drawings and specs to be delivered to RIT electronically following the RIT CAD standard format.
  - f. Before A/E progresses with construction drawings and specifications, room names/numbers and equipment numbers and nomenclature must be reviewed with and approved by RIT's Design, Engineering and Electrical Departments.
  - g. RIT's *Design and Construction Guidelines* shall be included in all Project Manuals as an appendix and shall be referenced accordingly in the contract documents prepared by the A/E firm.
  - h. Use only standard measures (except, do not use straw bales around catch basins) from NYSDEC Blue Book Toolbox for SWPPP and Storm water Plans, or latest NYSDEC information.
4. Mechanical, Electrical, and Plumbing (MEP) Drawings
- a. The following drawings are required for NEW construction:
    - i. Full plumbing isometric drawings for sanitary, storm and domestic water, with a fixture count table.
    - ii. Air flow diagrams for supply and exhaust systems.
    - iii. Hydronic flow schematics.
  - b. The following drawings are required for RENOVATION projects:
    - i. Provide separate drawings for removals and new work. Show all existing equipment on the removal set.
    - ii. For the new work, show partial plumbing isometrics drawings (starting at point of connection) for the sanitary, storm and domestic water, with a fixture count table of new fixtures.
    - iii. For the new work, show partial air flow diagrams (starting at point of connection) for supply and exhaust systems.
    - iv. Show full (remaining existing with new work) hydronic flow schematics.
  - c. Electrical, Fire Protection, and Fire Alarm drawings in **black and white only**, do not use other colors.
5. Project Close-out
- a. G.C. or C.M. is responsible for completing all required forms and submitting to RIT project manager for their records within 30 days of receipt of the Certificate of Occupancy. Forms shall include (but are not limited to):
    - i. RIT HVAC Equipment Modification Form
    - ii. RIT Electrical Equipment Modification Form

#### **00 43 00 – Consultant Invoice Summary – AIA**

Document can be found at <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/docs/consultantinvoiceaia.doc>

#### **00 45 13 – Contractor's Qualification Form**

Document can be found at <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/docs/qualification.doc>

#### **00 45 13 – Contractor's Requalification Form**

Document can be found at <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/docs/requalification.doc>

#### **00 65 00 – Instructions for Payment/Lien Release**

Document can be found at <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/docs/instructionsforpayment.pdf>

#### **00 73 16 – Insurance Requirements (Plan Review Guidelines)**

1. Reference Insurance Plan Review Guidelines for RIT, <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/images/RIT%20FM%20Global%20Plan%20Review%20Guidelines%20%28002%29.pdf>

#### **00 73 19 – Health and Safety Requirements**

1. Reference the RIT Environmental Health and Safety website for all requirements at the following link, <https://www.rit.edu/fa/grms/ehs/>
2. Laboratory Guidelines
  - a. Laboratory renovation and construction has a number of OSHA standards to be applied during design. Each of these standards calls for different engineering controls to be considered: ventilation, storage cabinets, interlocks, separation of electrical and water sources, fire system requirements, building material and guarding requirements. Additionally, the ANSI standard for eyewashes and safety showers

must be met for labs where chemicals are to be used. EHS should be involved early in design reviews of labs to ensure that the hazards are being addressed through building and room systems.

- b. This link - <https://www.osha.gov/Publications/laboratory/OSHA3404laboratory-safety-guidance.pdf> - provides a comprehensive guide to hazards and standards that should be taken into account, including:
    - i. The Air Contaminants standard (1910.1000) provides rules for protecting workers from exposure to over 400 chemicals.
    - ii. The Ethylene Oxide standard (29 CFR 1910.1047) requires employers to provide workers with protection from occupational exposure to ethylene oxide (EtO).
    - iii. The Formaldehyde standard (29 CFR 1910.1048) requires employers to provide workers with protection from occupational exposure to formaldehyde.
    - iv. The Hazard Communication standard (29 CFR 1910.1200) is designed to protect against chemical source illnesses and injuries by ensuring that employers and employees are provided with sufficient information to recognize, evaluate and control chemical hazards and take appropriate protective measures.
    - v. The Occupational Exposure to Hazardous Chemicals in Laboratories standard (29 CFR 1910.1450), commonly referred to as the Laboratory standard, requires that the employer designate a Chemical Hygiene Officer and have a written Chemical Hygiene Plan (CHP), and actively verify that it remains effective.
    - vi. The Bloodborne Pathogens standard (29 CFR 1910.1030), including changes mandated by the Needlestick Safety and Prevention Act of 2001, requires employers to protect workers from infection from human blood borne pathogens in the workplace. The standard covers all workers with “reasonably anticipated” exposure to blood or other potentially infectious materials (OPIM).
    - vii. Ionizing Radiation standard (29 CFR 1910.1096). Ionizing radiation sources may be found in a wide range of occupational settings, including, but not limited to, healthcare facilities, research institutions, nuclear reactors and their support facilities, nuclear weapons production facilities, and other various manufacturing settings. These radiation sources pose considerable health risks to affected workers if not properly controlled. This standard requires employers to conduct a survey of the types of radiation used in the facility, including x-rays, to designate restricted areas to limit worker exposure and to require those working in designated areas to wear personal radiation monitors. In addition, radiation areas and equipment must be labeled and equipped with caution signs.
    - viii. Occupational Noise Exposure standard (29 CFR 1910.95). This standard requires employers to have a hearing conservation program in place if workers are exposed to a time-weighted average of 85 decibels (dB) over an 8-hour work shift.
    - ix. The Control of Hazardous Energy standard (29 CFR 1910.147), often called the “Lockout/Tagout” standard, establishes basic requirements for locking and/or tagging out equipment while installation, maintenance, testing, repair, or construction operations are in progress. The primary purpose of the standard is to protect workers from the unexpected energization or start-up of machines or equipment, or release of stored energy.
    - x. Electrical Hazards standards (29 CFR 1910 Subpart S). Wiring deficiencies are one of the hazards most frequently cited by OSHA. OSHA’s electrical standards include design requirements for electrical systems and safety-related work practices. If flammable gases are used, special wiring and equipment installation may be required.
  - c. Additional information can be found at the following links:
    - i. [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10106](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106)
    - ii. [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10106](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106)
    - iii. <https://www.osha.gov/SLTC/laboratories/otherresources.html>
3. In addition to contractors’ respective policies and OSHA Fall Protection standards, contractors will adhere to the following,
    - a. Safety railings and/or tie-off points for compliance with OSHA Fall Protection shall be provided for rooftop inspections and service of mechanical equipment, electrical equipment, roof drains, and the roof membrane.
    - b. Where possible, avoid the construction of Confined Spaces (i.e. pump in manhole for water feature).

- c. Provide OSHA 29CFR-1910 compliant Fall Protection both inside and outside the building (parapet height of 42 inches, railing, or anchor points), and provide testing of anchor points. Submit testing certificates to Owner at close out. Guards to be galvanized powder-coated finish.
4. Hot Work Permits
  - a. Anytime work requires brazing, cutting or welding, that utilizes open flame and/or could produce sparks that could accidentally start a fire, the contractor or employee doing the work is required to obtain a Hot Work Permit (<https://www.rit.edu/fa/grms/ehs/sites/rit.edu/fa.grms.ehs/files/docs/hotworkpermit.pdf>). The permit may be obtained in person at the EHandS Office (Grace Watson Hall, Building 025), or by completing the Hot Work Permit Application and sending to EHandS via e-mail at gwzehs@rit.edu or by fax to (585) 475-2966 at least 24 hours in advance of the start of the hot work.
  - b. See <https://www.rit.edu/fa/grms/ehs/fire/hotworks.html> for detailed requirements.
5. Lockout/Tagout
  - a. RIT's Lock Out Tag Out (LOTO) program outlines practices and procedures to be used by authorized employees that affix the appropriate types of locks and tags to disable machinery/equipment prior to maintenance or service work.
  - b. See <https://www.rit.edu/fa/grms/ehs/content/lockouttagout> for detailed requirements.

### **00 73 43 – Prevailing Wages**

Document can be found at <https://www.rit.edu/fa/facilities/sites/rit.edu/fa.facilities/files/docs/prevailingwages.doc>

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**Appendix 1 – Project Record Documents and CAD Specifications**

The design team shall provide RIT with Revit, AutoCAD, and PDF files and prints that capture the construction conditions of the associated project. The Architect of Record holds all the copyrights to AutoCAD and Revit files; RIT makes no claim to proprietary information contained within the files. This document outlines requirements for submitting project information to RIT. Consult the Planning and Design Services Director with any questions or comments.

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**1. PART A – PROJECT RECORD DOCUMENTS (DELIVERABLES)**

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**A1: REVIT FILES**

Revit models are required on all construction projects (new, additions, alterations) with a total project funding of \$2,000,000 or greater.

1. The final Revit files used in the Design Services phases of a project, including up-to-date revisions and modifications, shall be transmitted to RIT according to the schedule in section A6. The files shall not be password protected. Create and submit a combined final Revit building model linking all trade components in addition to individual, separate files not part of worksharing.
2. All models must be drawn using at least Revit 2016 version. Files shall be .rvt file extension and accompanied by a version of the drawing in AutoCAD (see section A2).
3. Revit models shall be created to include all geometry, physical characteristics, and product data needed to accurately represent the design and construction work of a project. Drawing sheets, schedules, simulations, and services required for assessment, review, bidding, and construction shall be extractions from this model.
4. Any use of Revit translation software must result in 100% compatibility with the RIT computer hardware and software.
5. All drawings must use the RIT title border (see C2 for title border requirements).
6. Purge all unused items before submitting.

**A2: AUTOCAD FILES**

AutoCAD drawings are required on all construction projects (new, additions, alterations) with a total project funding of \$500,000 or greater.

1. All final AutoCAD files used in the Design Services phases of a building project, including all up-to-date revisions and modifications, shall be transmitted to RIT according to the schedule in section A6. The files shall not be password protected. Include all trade (ARCH, MECH, ELEC, PLBG, etc.) components and files.
2. All models must be saved as an AutoCAD 2013 version. Files shall be .dwg file extension and accompanied by a version of the drawing in Revit if applicable (see section A1).
3. AutoCAD files shall include all geometry, physical characteristics, and product data needed to accurately represent the design and construction work of a project. Drawing sheets and shall be extractions from this file.
4. Any use of AutoCAD translation software must result in 100% compatibility with the RIT computer hardware and software.
5. Files shall be based on Version 6 of the National CAD Standard or follow RIT-specific standards.
6. No objects shall be stored on layer '0' (zero) or 'Defpoints.' All blocks shall be created or inserted on a layer specific to that block.
7. All drawings must use the RIT title border (see C2 for title border requirements).
8. Apply the following settings prior to submitting,
  - a. Convert all 3D objects to 2D. All linework should be at elevation 0'-0".
  - b. Use the "PURGE" command to remove all unused objects (blocks, dimstyles, layers, linetypes, shapes, materials, styles, etc.).
  - c. Turn off "SNAP" and "GRID".
  - d. Change the background color to BLACK.
  - e. Lock all viewports.
  - f. Name the Layout tabs as intended for printing using drawing designators outlined in section B3.
  - g. "BIND" all Xref files to the drawing files on the 0 – XREF layer.

### A3: PDF FILES

PDF files are required on all construction projects (new, additions, alterations). The files shall be up-to-date with revisions and represent the final construction conditions of the project.

1. PDF files used in the Design Services phase of a building project shall be transmitted to RIT according to the schedule in Section A5. The files shall not be password protected. Include all Building Information Modeling (BIM) and trade (MECH, ELEC, PLBG, etc.) components. The files will be utilized by RIT staff for reference and building maintenance. The Architect of Record holds all the copyrights; RIT makes no claim to proprietary information contained within the files.
2. The PDF files shall be created as a plot to pdf from the Revit model or AutoCAD drawing, scaled appropriately on ARCH D size media. Include all geometry, physical characteristics, and product data needed to describe the design and construction work of a project.
3. All drawings must be on the RIT title border (see B2 for title border requirements).
4. Each construction drawing shall be its own unique file, named using [Discipline and Stage] - [Sheet Title]
  - a. Example: A101 – First Floor Plan

### A4: PHYSICAL PRINTS

Physical prints are required on all construction projects (new, additions, alterations). The files shall be up-to-date with revisions and represent the final construction conditions of the project.

1. All printing shall be on white paper.
2. The quantity of printed bid documents is as authorized by the University in writing. Actual quantity of bid documents printed shall not exceed the quantity authorized, nor be more than needed for actual distribution requests and for administrative copies.
3. Emailing is the preferred vehicle for addendum distribution. When emailing addendum to plan holders, obtain receipt of confirmation. However, when receipt confirmation is not possible, phone plan holder to confirm addendum receipt.
4. Returned bid documents shall be stored and/or disposed of as directed by the University. Sufficient sets of bid documents need to be retained, and subsequently issued to the successful bidder after project award. Consultant shall verify that all sets for re-use are clean and complete.

### A5: SUBMITTAL REQUIREMENTS / QUALITY ASSURANCE

1. Architect/Engineer must submit one copy of all project-related Revit and AutoCAD drawing files on CD or USB-drive, along with electronic PDF files of all record and “as-built” drawings. Drawings must follow conventions and guidelines outlined in this specification.
2. Consultant shall submit a list, using Microsoft Word (.doc) or Microsoft Excel (.xls), of all documents included in the submittal package, including drawing numbers, titles, and file names. The consultant is responsible for including any copyright information or restrictions pertaining to these documents.
3. Naming requirements, described in Part B of this document, are to be used for all drawing files.

### A6: SCHEDULE

Submissions due to RIT Project Manager, included with transmittal letter listing all files included. Deliver via method and timeframe specified by the RIT Project Manager (email, Google drive, CD, etc.) All files shall be in 2014 or newer format. Provide “Read Me” file if necessary with information to understand drawing files if necessary.

1. Schematic Design
  - a. PDF files
2. Design Development
  - a. PDF files
3. Construction Documents
  - a. PDF files
4. Bidding
  - a. Complete **Issued for Bid** PDF files and physical prints
  - b. Floor Plan AutoCAD files
5. Construction Administration (prior to work commencement)
  - a. Complete **Issued for Construction** PDF files and physical prints
  - b. Revit/AutoCAD models to be shared with construction team for coordination and clash detection
6. Closeout Process (prior to final billing)

- a. Complete As-Built PDF original digital files, not scanned from hard copies
- b. Complete and final set of Revit/AutoCAD models reflecting approved as-built conditions

## 2. PART B – CAD SPECIFICATIONS (TECHNICAL REQUIREMENTS)

### B1: DRAWING CONTENT

3. Space Polylines – Defining Room Numbers, Boundary Placement [AutoCAD]
  1. Gross – the gross area of a building is the sum of the areas at each floor level included within the principal outside faces of exterior walls, provision to be made for architectural setbacks or projections. Include all stories of areas containing floor surfaces with clear standing head room regardless of their use. Where a ground level or intermediate story, or part thereof, is left unenclosed, consider the gross area of the unenclosed story as the projected area of the story above. Exclude all unroofed areas and unenclosed roofed-over spaces. Each architectural floor plan will have a closed polyline outlining this area. This information will only change over the life of the building if there is a brick and mortar addition or demolition.
  2. Core – core (non-assignable) spaces are areas of a building which service the building(s) operation rather than the tenant. The core space of a building will normally not change its function over the life of the building or depend on the tenant occupying the building. Core space will include major vertical penetrations such as stairs, elevator shafts, flues, pipe shafts, vertical ducts and their enclosing walls. Examples of core areas include public restrooms, janitorial closets containing plumbing, electrical transformer rooms, and mechanical rooms containing building heating, ventilation, and air conditioning equipment, telecommunications and computer networking rooms, that service the building. Note: administrative offices in core space such as a boiler room operator office or desk area in a telephone room should be considered core space, but are NOT non-unassignable. Enclosed areas such as columns and mechanical shafts will be individually defined and measured with a polyline space. The measurement of core area includes the space from the outside finished surface of the enclosing permanent walls. The appropriate person at RIT will determine if these spaces are to have room numbers. Contact the Space Inventory Coordinator's office.
    - a. These areas will be defined in a lump sum sq. ft. number by floor. Open space (such as atriums) will be defined according to the RIT standard.
    - b. Total core area will be defined in a single record per floor with a lump sum square footage.
  3. Circulation – space required for physical access to some subdivision of space whether directly bounded by partitions or not; includes corridors, elevators, lobbies, and interior stairs. Limitations: only horizontal spaces required for general access are included, not aisles used only for circulation within office suites, auditoriums, or other work areas. Do not deduct building columns or projections.
  4. Under normal conditions, the boundary (space) line is to reflect conditions that exist 4'-0" above finished floor.
    - a. If an enclosed space is located between a room and a corridor (such as a pipe chase), it is not included in any room but treated as a wall.
    - b. For small enclosures built against the exterior wall, place line on the interior face of the exterior wall.
    - c. Mechanical equipment and related piping and ductwork located inside walls will not be considered when locating polylines.
    - d. Closed space polylines will be divided into definitive areas, such as major intersections, at fire doors, etc. These spaces will also be assigned a unique room number by RIT and included in the list of Room Numbers, Names, Sq. Ft. as part of the project package.
    - e. If a wall has been removed, making two rooms into one, the space is to be incorporated into the primary room, unless the main point of access to the room has changed.
  5. Core and Circulation areas are to be separate polylines. For the purpose of this section, "assignable space" is used to denote any space that is not core or circulation space.
  6. Include area polylines indicative of the gross area/footprint of the building/floor.
  7. Include area polylines indicative of the Net Square Footage of every internal space in the building. The area of each polyline will be recorded in the Net Area section of the Room Information Block. Architectural floor plans that do not include this information will not be accepted as either Design, Contract, or As-Built documents by RIT.
  8. A polyline will be drawn to the inner surface of the exterior wall or window glass. The space line will be placed on the dominant interior face of the exterior wall and party walls, regardless of thickness or material type, and will be placed so as to maximize useable square footage. Do not include the room net floor area occupied by room heating units (radiators), custom-built furniture such as room length permanent bookcases, etc.

9. All polylines shall be placed on their own layer, named 'EC1 Space Polygons'. Color to be 3-Green.
  10. All polylines must be closed using the "close" command to finish the polyline.
  11. Room numbers for renovation and new construction projects will be assigned by the RIT Space Inventory Coordinator during the Design phase. These will also be reviewed by RIT at the Construction Document and Bidding phases to capture any design changes.
  12. Area specific information including room number, room name, and net area in the format specified and provided by RIT.
4. Trade-Specific Drawing Content
1. Security systems shall have dedicated drawings, including motion sensors, door sensors/switches, door lock releases, key card readers, central stations, with spaces indicated.
  2. Access systems shall have dedicated drawings, including motion sensors, door sensors/switches, door lock releases, key card readers, central stations, with spaces indicated.
  3. Fire alarm systems shall have dedicated drawings.
  4. Sprinkler systems shall have dedicated drawings.
  5. Special fire systems shall have dedicated drawings (halon, foam, other); indicate system type, area served, component locations, discharge nozzles, detectors, connections to alarm/power/HVAC

## B2: DRAWING SHEETS

1. Title Border: All drawings shall use the RIT Title Border file. Contact Project Manager for title border file.
2. Floor plans shall not be less than 1/8" = 1'-0". All final drawings shall conform to 24" x 36" (Arch D) plot size.
3. Cover sheet shall include, but is not limited to,
  - a. "RIT Project No. \_\_\_\_\_"
  - b. Project Title (use official project title)
  - c. Location on RIT Campus, including building name, building number, floor, etc.
  - d. "Prepared by: \_\_\_\_\_" (insert consultants name and address)
  - e. Professional seal and signature (include on all drawings)
  - f. "ADDENDUM NO. \_\_\_\_" with date (MM/DD/YYYY)
    - i. An introductory to include the following or similar language: "The following additions, deletions, and/or changes or clarifications to the drawings, specifications, and bidding documents for this project, shall become and are hereby made part of the Contract Documents. They change the original documents only in the manner and to the extent stated. Each bidder shall acknowledge receipt of this Addendum in the appropriate location on the bid proposal form."
    - ii. The secondary paragraph to include, if necessary: "This addendum consists of \_\_\_\_\_ pages, and \_\_\_\_\_ drawings and \_\_\_\_\_ attachments" (indicate "no" if there are no drawings and/or attachments).

## B3: NUMBERING / NAMING CONVENTIONS AND DESIGNATORS

1. Project Folder Naming
  - a. Format: RIT – Bldg # – Floor(s) – Year – RIT Project # - RIT Project Name
  - b. Example: RIT-001-1-2005-123456-HR Renov
  - c. Include sub-folders for each phase of design (SD, DD, CD, BN, CA)
  - d. Floor indicators include numbers 1-7; A = Basement; R = Roof
2. File Naming
  - a. AutoCAD (multiple files): Design Phase - RIT Project # - Discipline and Stage – Sheet Name
    - i. Example: DD-123456-A101-First Floor Plan
  - b. AutoCAD (single file) and Revit: Design Phase – RIT Project # - Discipline
    - i. Example: CD-123456-PLBG
  - c. PDF: Design Phase – RIT Project # - Discipline and Stage – Sheet Name – Date
    - i. Example: SD-123456-A401-2020\_04\_25
3. Sheet Naming and Numbering (reference UDS Module #1)
  - a. Format: Discipline Designator and Sequence Number – Revision Status (if necessary)
  - b. Example: A101-R1
4. Layer Naming Prefix Classifications shall adhere to NCS [AutoCAD].



5. Discipline Designators (Reference UDS Module 1): RIT designators are based on NCS drawing set organization (Discipline – Sheet Type). Add ‘D’ after Designator where applicable to indicate demolition drawings. The first component of the sheet identification format is based on alphabetical letters.

Order Sequence	Designator	Discipline
1	G	General
2	H	Hazardous Materials
3	V	Survey/Mapping
4	B	Geotechnical
5	C	Civil
6	L	Landscape
7	S	Structural
8	A	Architectural
9	I	Interiors
10	Q	Equipment
11	FA	Fire Alarm
12	FP	Fire Protection
13	P	Plumbing
14	MH	Mechanical HVAC
15	MP	Mechanical Piping
16	EC	Electrical Communication
17	EL	Electrical Lighting
18	EP	Electrical Power
19	ES	Electrical Systems
20	FS	Food Service
21	R	Resource

6. Sheet Type Designators (Reference UDS Module 1): The second component of the sheet identification format is identified by a single numerical character.

Numerical Series	Description
000	General (symbol legend, abbreviations, notes)
100	Plans
200	Elevations
300	Sections
400	Large Scale Drawings, Interior Elevations
500	Details
600	Schedules and Diagrams
900	3D Representations (isometrics, photographs, etc.)

7. Supplemental Type Designators (if necessary):

- R – Revised floor plan (used with revision number, e.g. R1 or R2)
- X – Totally revised floor plan
- A – First phase of a multi-phased construction project (B = Phase 2, etc.)
- RD – Record Drawing
- AB – As-Built

## **B4: AUTOCAD DRAWING ACCURACY AND CONSISTENCY**

- The “0,0,0” coordinate is used as the prime reference point for connecting various drawing sections together, as well as merging drawings from various disciplines. Do not change the drawing’s base insertion point.
- Refer to UDS Module 5 for abbreviation standards.

**B5: AUTOCAD LAYERS**

1. The layering of drawings must always match the standard specified. The Layer Convention utilizes the NCS Standard (AIA CAD Layer Standard). Variations from or additions to the NCS Standard will be documented for and approved by RIT.
2. No drawing objects will be stored on layer '0' (zero) or layer 'Defpoints'.
3. Prefix classifications will adhere to the National CAD Standard.

**B6: AUTOCAD LINEWEIGHTS, LINETYPES, COLORS**

5. Plot using the **RIT Standard BW.ctb** file as the basis for your own plotter configurations to provide proper colors and lineweights per the RIT Specifications. Do not change the file in any way. Contact Project Manager for .ctb file.

**B8: TEXT STYLES**

1. All text shall be 1/8" or 3/8" height when plotted.
2. Create all text in uppercase lettering, except for industry standard recognized unit designators (kHz, Vac, etc.) Sheets that consist mainly of text may use lowercase lettering.
3. [AutoCAD] Maintain, at minimum, .9 line space factor between text lines. Maintain, at minimum, .75 font width factor between letters.
4. Text shall read from left or bottom of sheet.
5. Approved fonts include,
  - Georgia – used for titles, headings, etc. ("RIT" font)
  - Arial – used for notes and general information
  - [Univers Condensed, RomanS, will also be accepted]
6. [AutoCAD] Notes with leaders shall be one entity. Use multi-leaders at scale in which drawing will be printed. Do not explode or break apart text from leader.

**B9: DIMENSIONS**

1. Specify dimensions of less than one foot in inches (zero suppression).
2. Specify dimensions one foot or greater in feet and inches (not zero suppression).
3. Do not stack fractions.
4. Locate dimension text above dimension line. Text must be read from left or bottom of page.
5. Arrows, slashes, ticks are all acceptable arrowheads; keep consistent throughout drawing set.
6. [AutoCAD] Regardless of which layer dimensions are placed, lines shall be color Red 01, and text shall be color Yellow 02.

**B9: AUTOCAD BLOCKS AND HATCHING**

1. Refer to Module 6 of the UDS for Standard Reference Symbols.
2. All blocks will be created and inserted on a layer specific to that block.
3. Size blocks in relation to the drawing plot scale. When plotting at 1/8" = 1'-0", the insertion scale factor would be 96.
4. Fill in any attribute fields that are included in the block.
5. Do not mirror blocks.
6. Temporary blocks used in drawing creation should be exploded and purged out of the drawing. This includes entities that are copied/pasted within or between drawing files.
7. RIT follows no hatch standards. Patterns, scales, angles are selected at user's discretion. However, hatching should occur on the associated service layer with appropriate linetypes, lineweights, scales, and colors.

**END OF DIVISION 00**