

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTION: Include the following section if COBIE data is required
in any contract.

Electronic O&M Data

In lieu of the submission of paper handover documents, the contractor shall provide all required O&M data to the government electronically in the Construction Operations Building Information Exchange (COBIE) format. The specification of the COBIE format may be found on the "Tools" section of the Whole Building Design Guide (WBDG) (www.wbdg.org). Training and documentation materials, as well as sample files are also provided on the COBIE pages of the WBDG.

a. Four (4) copies of the COBIE data set shall be provided.

(1) The technology used for the data transmission shall be selected to ensure that the data is provided on one single "disk" or "drive." The contractor shall provide data on either disk-based (CD or DVD) or portable hard drive media. The selection of disk-based on drive-based media shall be made by the government.

(2) If disk-based media is provided, a printed label on the data disk shall list the name of the project, project location, contract number, prime contractor name, title of submission, and security classification. To insure that any problems with the data or media can be easily resolved the label shall also include the name and contact information of the individual who produced the final data disk.

(3) If drive-based media is provided, the drive shall be legibly hand-labeled with a permanent marker. The label shall include the phrase "COBIE DATA" and the appropriate contract or task order number.

(4) An ASCII file named "readme.txt" file shall be provided in the same directory as the COBIE spreadsheet. The "readme.txt" file shall list the name of the project, the contract number, the name of the prime contractor company. To insure that any problems with the data or media can be easily resolved the label shall also include the name and contact information of the individual who produced the final data disk.

SPECIFIER INSTRUCTION: Include the following paragraph if appropriate for the
sponsoring agency

(6) Encryption of all data on the COBIE disk is required per [provide reference for data encryption standard].

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTION: Include the following paragraph if appropriate for the sponsoring agency. The SPECIFIER must ensure that only the deliverables required for the specific type of contract design, construction, or design/build are included in this section.

b. Failure of the contractor to provide the COBIE data with the associated design or construction documents, or at the time specified in later COBIE specifications, will result in the following retainages. The retainage shall be released following the approval of the required COBIE data set. These retainages reflect the cost to the government to independently recreate the data required by the COBIE format:

- (1) Schematic Design Set. \$5,000 retainage shall be held from the [designer] [design/builder] if COBIE data is not provided upon delivery of the Schematic Design Set.
- (2) Design Development Set. \$10,000 retainage shall be held from the [designer] [design/builder] if COBIE data is not provided upon delivery of the Schematic Design Set.
- (3) Construction Documents Set. \$15,000 retainage shall be held from the [designer] [design/builder] if COBIE data is not provided upon delivery of the Construction Documents Set.
- (4) Operations Planning Set. \$20,000 retainage shall be held from the [construction contractor] [design/builder] if COBIE data is not provided at the earlier of 70% fiscal completion or four (4) months prior to beneficial occupancy.
- (5) Beneficial Occupancy Set. \$25,000 retainage shall be held from the [construction contractor] [design/builder] if COBIE data is not provided at beneficial occupancy.
- (6) As-Built Set. \$30,000 retainage shall be held from the [construction contractor] [design/builder] if COBIE data is not provided with the as-built drawings at fiscal completion of the project.

{end of initial section for design, construction, and design/build contracts}

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTION: Include the following section below the initial section
"a" if COBIE data is required in contracts for **DESIGN SERVICES**

c. The Designer shall submit four (4) copies of each COBIE data set listed below.

(1) Schematic Design Set. This data set shall include those COBIE "designer" worksheets related to architectural program. The designer shall specifically identify spatial and systems zoning to reflect the space circulation zones and building service zones that are reflected in the design drawings and specifications.

SPECIFIER INSTRUCTIONS: If the agency has specific circulation zones identified, add the following sentence.

(a) The designer shall ensure that the following space zones are identified through the Space Reference ID Column of the COBIE Space worksheet: [provide space zone list here]

SPECIFIER INSTRUCTIONS: If the agency has specific building service zones identified, add the following sentence.

(b) The designer shall ensure that the following building service zones are identified through the System Reference ID Column of the COBIE System worksheet: [provide service zone list here]

(c) The following COBIE worksheets shall be provided in the Schematic Design Set:

- (i) Facility - Facility(ies) referenced in the file
- (ii) Floor - Description of vertical levels
- (iii) Space - Spaces referenced in a project
- (iv) System - Systems referenced in a project

(2) Design Development Set. The Design Development Set shall be an update to the Schematic Design Set. The Register worksheet shall identify the types of equipment to be installed. The Component worksheet shall identify the major individual pieces of equipment individually identified at the Design Development Stage. The following worksheets shall be provided.

- (a) Facility - Facility(ies) referenced in the file
- (b) Floor - Description of vertical levels
- (c) Space - Spaces referenced in a project
- (d) System - Systems referenced in a project
- (e) Register - Material/equipment/etc. types (submittal register)
- (f) Component - Individually named materials and equipment

(3) Construction Documents Set. The Construction Document set shall be an update to the Design Development data set. All named products and equipment

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

appearing in design schedules shall be listed in the Components Table. The following worksheets shall be provided.

- (a) Facility - Facility(ies) referenced in the file
- (b) Floor - Description of vertical levels
- (c) Space - Spaces referenced in a project
- (d) System - Systems referenced in a project
- (e) Register - Material/equipment/etc. types (submittal register)
- (f) Component - Individually named materials and equipment

SPECIFIER NOTE: In section that requires Submittal Register, add reference to require the provision of the Submittal Register in the COBIE spreadsheet.

d. The designer shall ensure that all submittal register items required elsewhere in the contract are listed in the COBIE "Register" worksheet. Each register row that relates to a specific building system will be so identified in the appropriate COBIE "Register" worksheet column.

e. The designer shall ensure that the list of equipment provided in the COBIE "Component" worksheet includes all equipment specifically identified on the design drawings or BIM model.

SPECIFIER INSTRUCTION: Include the following paragraph to the paragraph above, if space programming checks are accomplished using COBIE data exchange. The agency will need to select the required space measurement standards from the list below.

f. The designer shall provide space classification and space measurement data to verify compliance with architectural programming requirements.

(1) The designer shall map the program requirements into the most appropriate Space Function of the COBIE Space worksheet.

(2) The designer shall provide space measurement, and associated units, according to the [BOMA/IFMA Working Group Space Measurement] Standard. The calculation method used shall be explicitly identified in the Calculation Method of the COBE Space worksheet. The following specific space measurement data columns (and associated units) shall be required for every COBIE data disk submission:

- (a) Usable Height
- (b) Exterior Gross Area
- (c) Interior Gross Area
- (d) Plannable Gross Area
- (e) Rentable AreaUsable Area
- (f) Interior Plannable Area

{end of section}

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTIONS: Include the following section below the initial section "a" if COBIE data is required in contracts for **CONSTRUCTION** services

c. The government shall provide those worksheets identified as "designer" worksheets as Government Furnished Data (GFD). The contractor shall not modify "designer" worksheet data unless construction modifications result in deviations of as-built conditions from the original design. If deviations from GFD are required deviations shall be done in accordance with referenced COBIE standard.

d. The Contractor shall submit four (4) copies of each COBIE data set listed below.

(1) Operations Planning Set. This data set shall be an update to the designer's GFD worksheets. This set shall be provided at 70% fiscal completion or four (4) months prior to beneficial occupancy, whichever is earlier. The following worksheets shall be provided.

- (a) Document - Documents referenced in this file
- (b) Installation - Location and serial no. of installed components
- (c) Manual - Instruction manuals for sets of/or components
- (d) Warranty - Warranty information for sets of/or components
- (e) Spare - Spare/parts reordering info for sets of/or components

(2) Beneficial Occupancy Set. This data set shall be an update to the Operations Planning Set. Tag numbers for valves, controls, or other "tagged" items shall be individually identified in the "Component" worksheet. The following worksheets shall be provided.

- (a) Document - Documents referenced in this file
- (b) Installation - Location and serial no. of installed components
- (c) Manual - Instruction manuals for sets of/or components
- (d) Warranty - Warranty information for sets of/or components
- (e) Spare - Spare/parts reordering info for sets of/or components
- (f) Instruction - Installation/operating instructions
- (g) Test - System/component test results
- (h) Certification - Installation certifications
- (i) Material - Special materials needed for a given Job Plan Task
- (j) Tool - Special tools needed for a given Job Plan Task
- (k) Training - Special training needed for a given Job Plan Task
- (l) PM - Identifies specific PM tasks and frequency
- (m) Safety - Identifies required safety tasks
- (n) Trouble - Start-up procedures
- (o) Start-Up - Shut-down procedures
- (p) Shut-Down - Emergency operating procedures

(3) As-Built Set. This data set shall be an update to the Beneficial Occupancy Set. Tag numbers for valves, controls, or other "tagged" items shall be individually identified in the "Component" worksheet. All worksheets required for the Beneficial Occupancy set shall be updated to fully reflect as-built conditions.

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTIONS: If the project contains government furnished equipment then include the paragraph below.

(4) Government Furnished Products. The As-Built data set shall include the associated COBIE data for all [Government Furnished Contractor Installed Equipment] [Government Furnished Government Installed Equipment] included in this project.

e. All project handover documents, including those previously provided in paper format, shall be obtained directly from product manufacturers, prepared, or scanned for inclusion on the COBIE data disk. These documents shall be provided in individual Portable Document Format (PDF). Documents created by members of the project team directly using word processors shall use their word processor to create the PDF document directly. Text documents that must be scanned shall be processed through an optical character recognition program prior to creating the PDF file.

d. Data shall be provided for all COBIE worksheets and data fields identified as "required" in the COBIE specification. Optional fields may be provided, if appropriate, at the discretion of the contractor. Reference fields shall be mandatory, if applicable.

SPECIFIER INSTRUCTIONS: Include agency-specific instructions for the use of optional fields in new paragraphs below.

f. The naming of rooms in COBIE (i.e. "Space" worksheet) shall match the room numbers identified associated design or underlying Building Information Model. As room numbers change, the subsequent COBIE deliverable shall be updated (according to referenced COBIE requirements) to reflect the changes to these room numbers. If there is a conflict between drawings, schedules, and specifications, then schedules trump drawings, specifications trump schedules.

g. The naming and location of designer' named materials, products, and equipment in COBIE (i.e. "Component" worksheet) shall match the final naming and location of each piece of equipment individually identified on associated design or underlying Building Information Model. As the naming and location of materials, products, and equipment change, the subsequent COBIE deliverable shall be updated (according to referenced COBIE requirements). If there is a conflict between drawings, schedules, and specifications, then schedules trump drawings, specifications trump schedules.

h. At all submissions of contractor COBIE data the identification of named equipment and tagged valves, controls, or other items in the Component worksheet shall match the actual physical location of the item on the project site.

i. Contracts that require independent commissioning agents shall include commissioning documentation within the COBIE disk. In particular, the submission of system specific maintenance and other plans shall be provided in the "Job Plans" COBIE worksheets. Paper submissions of these job plans shall not be required, provided the plans are fully provided on the appropriate COBIE worksheet.

{end of section}

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTIONS: Include the following section if COBIE data is required
in contracts for **Design-Build services**

c. The Contractor shall submit four (4) copies of each COBIE data set listed below.

(1) Operations Planning Set. This data set shall be an update to the designer's GFD worksheets. This set shall be provided at 70% fiscal completion or four (4) months prior to beneficial occupancy, whichever is earlier. The following worksheets shall be provided.

- (f) Document - Documents referenced in this file
- (g) Installation - Location and serial no. of installed components
- (h) Manual - Instruction manuals for sets of/or components
- (i) Warranty - Warranty information for sets of/or components
- (j) Spare - Spare/parts reordering info for sets of/or components

(2) Beneficial Occupancy Set. This data set shall be an update to the Operations Planning Set. Tag numbers for valves, controls, or other "tagged" items shall be individually identified in the "Component" worksheet. The following worksheets shall be provided.

- (q) Document - Documents referenced in this file
- (r) Installation - Location and serial no. of installed components
- (s) Manual - Instruction manuals for sets of/or components
- (t) Warranty - Warranty information for sets of/or components
- (u) Spare - Spare/parts reordering info for sets of/or components
- (v) Instruction - Installation/operating instructions
- (w) Test - System/component test results
- (x) Certification - Installation certifications
- (y) Material - Special materials needed for a given Job Plan Task
- (z) Tool - Special tools needed for a given Job Plan Task
- (aa) Training - Special training needed for a given Job Plan Task
- (bb) PM - Identifies specific PM tasks and frequency
- (cc) Safety - Identifies required safety tasks
- (dd) Trouble - Start-up procedures
- (ee) Start-Up - Shut-down procedures
- (ff) Shut-Down - Emergency operating procedures

(3) As-Built Set. This data set shall be an update to the Beneficial Occupancy Set. Tag numbers for valves, controls, or other "tagged" items shall be individually identified in the "Component" worksheet. All worksheets required for the Beneficial Occupancy set shall be updated to fully reflect as-built conditions.

SPECIFIER INSTRUCTIONS: If the project contains government furnished equipment then include the paragraph below.

(4) Government Furnished Products. The As-Built data set shall include the associated COBIE data for all [Government Furnished Contractor Installed

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

Equipment] [Government Furnished Government Installed Equipment] included in this project.

d. All project handover documents, including those previously provided in paper format, shall be obtained directly from product manufacturers, prepared, or scanned for inclusion on the COBIE data disk. These documents shall be provided in individual Portable Document Format (PDF). Documents created by members of the project team directly using word processors shall use their word processor to create the PDF document directly. Text documents that must be scanned shall be processed through an optical character recognition program prior to creating the PDF file.

e. Data shall be provided for all COBIE worksheets and data fields identified as "required" in the COBIE specification. Optional fields may be provided, if appropriate, at the discretion of the contractor. Reference fields shall be mandatory, if applicable.

SPECIFIER INSTRUCTIONS: Include agency-specific instructions for the use of optional fields in new paragraphs below.

f. The naming of rooms in COBIE (i.e. "Space" worksheet) shall match the room numbers identified associated design or underlying Building Information Model. As room numbers change, the subsequent COBIE deliverable shall be updated (according to referenced COBIE requirements) to reflect the changes to these room numbers. If there is a conflict between drawings, schedules, and specifications, then schedules trump drawings, specifications trump schedules.

g. The naming and location of designer' named materials, products, and equipment in COBIE (i.e. "Component" worksheet) shall match the final naming and location of each piece of equipment individually identified on associated design or underlying Building Information Model. As the naming and location of materials, products, and equipment change, the subsequent COBIE deliverable shall be updated (according to referenced COBIE requirements). If there is a conflict between drawings, schedules, and specifications, then schedules trump drawings, specifications trump schedules.

h. At all submissions of contractor COBIE data the identification of named equipment and tagged valves, controls, or other items in the Component worksheet shall match the actual physical location of the item on the project site.

i. Contracts that require independent commissioning agents shall include commissioning documentation within the COBIE disk. In particular, the submission of system specific maintenance and other plans shall be provided in the "Job Plans" COBIE worksheets. Paper submissions of these job plans shall not be required, provided the plans are fully provided on the appropriate COBIE worksheet.

{end of section}

CONCENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

SPECIFIER INSTRUCTIONS: Include the following section if COBIE data is required in contracts for **COMMISSIONING** services. Typically this will not be included in the O&M Handover specification but in a separate Commissioning specification section.

Electronic Commissioning Data

In lieu of the submission of paper handover documents, the commissioning agent shall provide all required commissioning data to the government electronically in the Construction Operations Building Information Exchange (COBIE) format. The specification of the COBIE format may be found on the "Tools" section of the Whole Building Design Guide (WBDG) (www.wbdg.org). Training and documentation materials, as well as sample files are also provided on the COBIE pages of the WBDG.

a. Commissioning agent data shall be provided as part of the following contractor COBIE data set deliverables:

- (1) Beneficial Occupancy Set.
- (2) As-Built Set.

b. The commissioning agent shall include the results of each tests and certifications as individual documents that are to be linked to one or more of the following COBIE spreadsheets:

- (1) Installation - Location and serial no. of installed components
- (2) Manual - Instruction manuals for sets of/or components
- (3) Instruction - Installation/operating instructions
- (4) Test - System/component test results
- (5) Certification - Installation certifications

c. The commissioning agent shall provide all necessary job plan tasks as specific tasks in the appropriate COBIE "Job Plan" worksheets. If needed attached PDF files may provide additional details on the performance of individual planned tasks. The commissioning agent shall provide the list of all tasks, with associated sequence, in the following COBIE worksheets:

- (1) PM - Identifies specific PM tasks and frequency
- (2) Safety - Identifies required safety tasks
- (3) Trouble - Start-up procedures
- (4) Start-Up - Shut-down procedures
- (5) Shut-Down - Emergency operating procedures

d. If the commissioning agent identifies specific materials, tools, or training associated with individual job plan tasks, then the commissioning agent shall that requirement in one of the following COBIE worksheets:

- (1) Material - Special materials needed for a given Job Plan Task
- (2) Tool - Special tools needed for a given Job Plan Task
- (3) Training - Special training needed for a given Job Plan Task

{end of section}

SPECIFIER INSTRUCTIONS: Include the following section if COBIE data is required
in contracts for **Maintenance & Renovation Contract Services**

Electronic O&M Data

In lieu of the submission of paper documentation, the contractor shall submit the following information to the government electronically in the Construction Operations Building Information Exchange (COBIE) format: (1) the make, model and serial number of each piece of installed equipment, (2) the location of any equipment installed in the building, and (3) manufacturer's documents including cut sheets, installation instructions, and recommend maintenance tasks, testing or other reports. The specification of the COBIE format may be found on the "Tools" section of the Whole Building Design Guide (WBDG) (www.wbdg.org). Training and documentation materials, as well as sample files are also provided on the COBIE pages of the WBDG.

- a. A partially completed COBIE data set shall be provided as Government Furnished Data (GFD) in either spreadsheet or PDF form formats. This file will be provided in conjunction with the work order ticket.
- b. Upon completion of the maintenance or repair action, the contractor shall complete changes to the COBIE data needed to reflect the current as-maintained or as-repaired conditions.
- c. The COBIE data set shall be emailed or posted to an address provided by the Department of Public Works within 1/2 hour of completing the work order.
- d. Failure to receive the COBIE data set prior to submitting the work order completion ticket will result in a minimum retaining being held on the work order payment of \$250.

{end of section}

CONSENSUS COBIE SPECIFICATION SECTIONS (version 2.0)

Note

Thanks are expressed by the author of this document to representatives of the following agencies who participated in the development of this consensus specification:

Department of State, Bureau of Overseas Buildings Operations

Department of Veterans Affairs

National Aeronautics and Space Administration

U.S. Army, Corps of Engineers

U.S. Navy, Naval Facilities Engineer Command