

INTRODUCTION

PURPOSE

Duke Realty Corporation (“Duke Realty”) constructs, leases, and manages industrial properties in markets across the country. Additionally, many clients and tenants do business with Duke Realty in multiple markets. Therefore, fostering a consistent reputation of quality and reliability that spans our various markets is of primary importance. This document sets forth standards for any design and construction drawings prepared on Duke Realty’s behalf. It is intended to provide guidance to third party design professionals regarding Duke Realty’s requirements for both the functional content and the aesthetic form of the drawings. Adherence to these standards will:

- Assist the design professional in the efficient production of their drawings;
- Insure that all drawings are compatible with Duke’s systems (i.e. Procore, DREAM).
- Provide for an efficient closeout process at a project’s completion;
- Create consistency of drawings from project to project, market to market;
- Promote Duke’s Realty’s national reputation as a quality and reliable partner with which to do business.

Duke’s expertise and commitment to quality have cemented our position as one of the largest publicly traded owners, managers, and developers of commercial industrial properties in the United States. The Design Drawings Standards ensure drawings produced by and for Duke Realty uphold our reputation as premier company in the real estate and construction industry.

GENERAL INFORMATION

ADHERENCE TO STANDARDS

The Design Drawing Standards shall be utilized in the production and archival of all sets of preliminary design drawings, construction documents, and record drawing sets created for Duke Realty. Design professionals shall not deviate from the Design Drawing Standards without receiving prior approval from the applicable Duke Realty Project Manager. Unauthorized deviations from these standards may cause additional re-work for the design professional, delays in project closeout, and shall constitute grounds for Duke Realty to delay final payment for services until such deviations are resolved.

Additionally, the intent of these standards is not to dictate how the drawings are prepared, but more so to insure that all plans created for Duke by all consultants are uniform (i.e., look and read the same).

FILE LOCATIONS

The Duke Realty Design Drawing Standards and standardized Title Block CAD files may be found on Duke Realty's Construction Vendor's website; (Link: <https://www.dukerealty.com/partners-tenants/partners/>) under the "Partners + Tenants" tab.



| WHO WE ARE

| WHAT WE DO

| FIND PROPERTY

| MARKETS

| CORPORATE RESPONSIBILITY

| NEWS

PARTNERS + TENANTS > [PARTNERS](#)**PARTNER WITH DUKE REALTY**

At Duke Realty, we are committed to selecting qualified vendors to deliver the best quality in materials and services while meeting our business needs. Interested in doing business with Duke Realty? Please click [here](#) to review our Partner FAQs.

HOW TO PARTNER WITH US

We appreciate your interest in doing business with Duke Realty.

The first step in doing business with us is to register in our [Vendor Management System](#). After you register, your company can be sourced for potential contracting opportunities. Registering also allows your company to be included in our directory of suppliers, which is accessible to Duke Realty associates throughout the country. We look forward to learning about your company's products and services.

RESOURCES FOR CONSULTANTS AND SUBCONTRACTORS**Safety and Prequalification**[Subcontractor Safety Information Survey](#)[Trade Contractor Prequalification Form](#)**Design Drawing Standards**[Design Drawing Standards User Guide](#)[AutoCAD Fonts](#)[AutoCAD Border Templates](#)**SUPPORT**

For all questions or clarifications regarding the Design Drawing Standards or for any technical inquiries or assistance please contact your Duke Realty Project Manager.

DESIGN DRAWING REQUIREMENTS

SOFTWARE

Duke Realty's standard software for the production of all design and construction drawings is AutoCAD. Prior to preparing drawings, the design professional shall confirm with the Duke Realty Project Manager which release of AutoCAD shall be used for a given project. If your design firm uses a different CAD platform, the design professional may still utilize their particular software for the production of design drawings. However, required submissions of electronic files to Duke Realty shall first be converted to clean and usable AutoCAD files that maintain an authentic representation of the original drawing hardcopy. All software conversion issues are the responsibility of the design professional; this includes drawing files generated by any sub-consultants, or for the use as base sheets for design/build subcontractors. Additionally, the Duke Realty Project Manager will require the submission of electronic design drawing files in alternate formats such as *.PDF format. All electronic submissions of design drawings shall be coordinated on a case by case basis with the Duke Realty Project Manager.

SHEET FORMAT

Duke Realty uses two styles of standardized drawing title blocks: "Presentation" and "Construction". The purpose or intended use of the drawings produced will dictate style, as indicated in sections below. Construction Title Blocks are specific to each Duke Realty location or market of operation, with hard coded Duke Realty Office addresses and phone numbers.

PRESENTATION TITLE BLOCKS

Presentation drawings may be full-sized sheets, or they may be reduced as appropriate for their intended use. The Presentation Title Blocks are available in most standard sheet sizes from 'A' size (8.5"x11") and up, in both horizontal (landscape) and vertical (portrait) formats. The design professional shall coordinate with the Duke Realty Project Manager to determine the size of the Presentation title block to be used for each required drawing.

Duke has title blocks available online that are to be used by the designer. Please verify the sheet size with the Duke Project Manager. The same title block will be used from schematic to record drawing.

Provisions for Consultant and/or Client logo insertion have been made in each Title Block format. This "logo" space has been identified with a rectangle drawn on the DR_NO_PLOT layer. Inserted logos should be contained within the boundary of the "no plot" rectangle. The drawing objects on the DR_NO_PLOT layer may be deleted, or the layer may be 'frozen' or turned 'off' for clarity of the displayed drawing file.

Title Blocks are specific to each Duke Realty location or market of operation, containing hard coded Duke Realty Office addresses and phone numbers. Each Title Block contains specific areas within the title block for certain information. This includes areas for:

- Duke Realty's local office information and corporate logo;
- A client's information and logo;
- The design professional's information, logo, and seal;
- General project information;
- Submittal or Issuance information;
- Sheet-specific information.

These elements (with the exception of client or design professional logos) are “built in” to the title block file. The design professional may easily input the required information within the title block keeping the font sizes, types, and locations consistent from drawing to drawing. The provided title block is set up to be used as an xref AutoCAD with sheet number and title as a sheet file block. However, the designer may alter the use as long as the final PDF look like the sample:

- Duke Entity (verify information with Duke Realty Project Manager)
- Project Role (intended for consultant and/or client information)
- Project Title
- Project Address
- Sheet Title Large (displays the sheet title in the central area of the title block)
- Revisions(Description/Date)
- Drawing Information
- Drawing/Sheet Title (displays the sheet title in the lower right corner of the title block)
- Sheet Number

The Duke Realty website (link: <https://www.dukerealty.com/partners-tenants/partners/>) contains folders for each market in which Duke Realty operates. Design Professionals are to download the market title block relevant for a given project. Duke Realty's standard construction drawing title blocks are named as follows:

CONSTRUCTION TITLE BLOCK

DR_Cnst_B_11x17_xxx.dwg
 DR_Cnst_C_18x24_xxx.dwg
 DR_Cnst_D_24x36_xxx.dwg
 DR_Cnst_E_30x42_xxx.dwg

Within these names, the single letter and numbers represent the title block/sheet size (i.e. an “E” sized sheet is 30” by 42”), and the last three letters indicate the market city. If ‘A’

size (Letter 8.1/2" x 11") title blocks are required, the 'B' may be reduced as necessary, and in appropriate proportions as to not distort the Duke Realty logo.

Provisions for Consultant and/or Client logo insertion have been made in each Title Block format. This "logo" space has been identified with a rectangle drawn on the DR_NO_PLOT layer. Inserted logos should be contained within the boundary of the "no plot" rectangle. The drawing objects on the DR_NO_PLOT layer may be deleted, or the layer may be 'frozen' or turned 'off' for clarity of the displayed drawing file.

SHEET NUMBERING AND FILE NAMING

Design professionals shall adhere to the sheet numbering standards described below for all formal design, permit, and construction drawings. Additionally, all AutoCAD files shall contain the sheet number as the first four characters within their respective file names. For example, an Architectural floor plan designated as sheet "A201" would be contained in a drawing file named "A201xxxx.dwg" (where "xxxx" represents additional characters the design professional may use to distinguish the drawing or project). For a given discipline, each series of plan sheets shall be numbered sequentially. Using the above example, A201 would be the first in a series of architectural plans, followed by A202, A203, A204 etc.

The design professional shall utilize the following two lists to determine the sequential naming of all design and construction sheets and their corresponding filenames:

- A** Architectural / Interiors (optional, see "I")
- C** Civil / Site – environmental, grading, roads, topo, survey, utilities, etc.
- D** Demolition -- all disciplines: combine the letter "D" with the discipline code
- E** Electrical – power, light, telecommunications, alarms/paging, security, a/v, etc.
- F** Foundation
- FP** Fire Protection
- H** Hazardous Materials, Safety Zoning, Evacuation Plans, Life Safety, etc.
- I** Interiors (optional, see "A")
- L** Landscaping
- M** Mechanical – HVAC, piping, temperature controls (optional, see "T")
- P** Plumbing
- Q** Equipment drawings
- S** Structural
- T** Temperature controls (optional, see "M")
- Z** Shop drawings

- 100 Series** General – cover, index, symbols, legends, general notes, vicinity maps
- 200 Series** Plans
- 300 Series** Elevations
- 400 Series** Ceiling Plans
- 500 Series** Sections and Details
- 600 Series** Door Schedules
- 700 Series** Finish Schedules
- 800 Series** user-defined

900 Series user-defined

NOTE: These Series names are consistent with what most firms use, based on the “National CAD Standard.”

DRAWING NOTES AND SYMBOLS

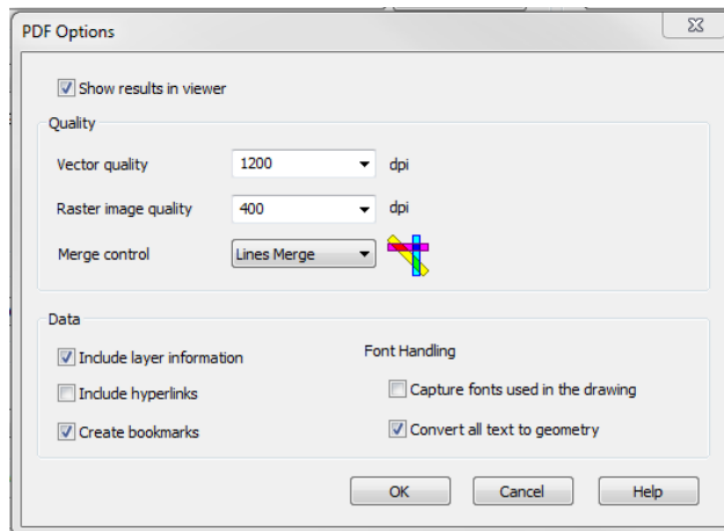
In an effort to make all drawings compatible with Duke project management software (Procore, DREAM, etc.), it is required that the Design Professional download and use the drawing notes, and drawing tags from Duke’s Website (Link: <https://www.dukerealty.com/partners-tenants/partners/>). These are blocks that can be inserted into the CAD files of the plans and are designed to be recognized by the project management software for linking. It is also important to note:

- No lines drawn over text.
- Placed on a layer, this insures the notes are plotted black and clear.

PDF PLANS SUBMITTED TO DUKE FOR REVIEW AND CONSTRUCTION

Duke’s project management system (Procore, DREAM) allows the construction process to be paperless. Many of these standards are to insure that the PDF files of the plans submitted to Duke are easily utilized. Design Professional should work with the Duke Project Manager for revision notes, etc. through construction. Also, **all PDF files are to be created at a high resolution vector format (MINIMUM 1200 DPI). No raster images of plans will be accepted.**

If using AutoCAD, please verify the following font variable in all files prior to making the PDF. PDFSHX=0.



RECORD DRAWING REQUIREMENTS

Following the completion of a project, Duke Realty retains the obligation to keep and store accurate copies of all “as-built” or record construction drawings produced for the project. The design professional is contractually required to submit electronic files of their record drawings to Duke; therefore a design professional’s contract cannot be closed out and final payment issued until electronic record drawings have been submitted. Record drawings shall adhere to the following standards to ensure acceptance by the Duke Realty Project Manager:

Design Professional will submit a full set of as-built plans in PDF format. ALL PDF FILES TO BE PRINTED IN HIGH RESOLUTION. In addition to this, the as-built Base File and Title block file should be included in .dwg format. For record drawings, all clouds should be turned off, but revision triangles left on. Verify title block revision entry verbiage with Duke Project Manager.

SOFTWARE

Consistent with the requirements for design, permit, and construction drawings, Duke Realty requires all record drawings be prepared using AutoCAD software. If your design firm uses a different CAD platform, electronic record drawing submissions shall first be converted to clean and usable .dwg files with elements drawn to scale. All software conversion issues are the responsibility of the design professional; this includes drawing files generated by any sub-consultants. Additionally, Duke Realty requires the submission of electronic record drawing files in .PDF format. All electronic submissions of record drawings shall be coordinated on a case by case basis with the Duke Realty Project Manager.

DRAWING SUBMISSION

The design professional shall submit electronic, AutoCAD files of each Base Plan.dwg to the Duke Realty Project Manager upon completion of a project. The electronic drawing file(s) submitted at the completion of a job should be clearly designated “Record Drawing(s)”. The Duke Realty Project Manager will review all electronic record drawings submitted by the design professional for adherence to the Design Drawing Standards. The Project Manager may, at their sole discretion, accept or reject a record drawing submission. Until electronic record drawings are submitted to and accepted by the Duke Realty Project Manager, neither the project nor the design professional’s contract will be closed out. This may delay final payment due to the design professional.

BUILDING INFORMATION MODELING (BIM)

Duke Realty recognizes that Building Information Modeling (BIM) is a utilized technology in the construction industry. The following requirements serve as a framework for BIM deliverables, and may be readdressed and modified as the industry evolves and develops mainstream standards.

Duke Realty's standard BIM software is Revit. Prior to preparing BIM models, the design professional shall confirm with the Duke Realty Project Manager which release of Revit shall be used for the specific project. If your design firm uses a different BIM platform, (such as Bentley, Navisworks, etc.) the design professional may still utilize their particular software for the production of BIM information. However, required submissions of electronic files to Duke Realty shall first be converted to Revit based files, or IFC files as described below. All software conversion, importing, and exporting issues are the responsibility of the design professional.

For all Projects requiring BIM, the design professional will begin modeling during the Design Development phase, and this will proceed through final as-built drawings. Spatial program BIM information required with the A-E Design Development levels through final design concept submissions will be submitted in both the native file format of the BIM authoring tool (Revit) and in Industry Foundation Classes (IFC) format. BIM deliverables will supplement, and not replace, the Duke Realty CAD standards and deliverables. The inclusion of BIM modeling into a given project will ultimately be guided by the direction of the Duke Realty Project Manager. Therefore, the Project Manager retains the authority to modify the provisions of this section for a given project.