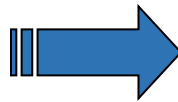




West Coast Code Consultants, Inc.
2400 Camino Ramon, Suite 240
San Ramon, CA 94583
Tel: 925.275.1700
Fax: 925.275.0600

White Paper: Best Practices for Performing Electronic Plan Reviews





1.0 INTRODUCTION

West Coast Code Consultants, Inc. (WC³), has provided electronic plan review services for several years and our staff members have utilized a number of different electronic review systems that have been implemented by our clients. While every system is different, there are still several things that need to be considered when performing the actual plan review electronically. The purpose of this white paper is to discuss some “best practice” solutions that we have found to be quite useful when performing electronic plan reviews.

2.0 EQUIPMENT

When performing electronic plan reviews it is important to use multiple large-scale monitors. There are several jurisdictions that purchase one very large monitor for their plan review staff, however we have found that dual displays help to expedite the plan review process. This allows the reviewer to have multiple sheets open at one time, to type their comments while also reviewing the plans, and to view code sections or other information while performing the review. When selecting the appropriate sized monitor please be aware that “bigger” is not always “better”. It is important to purchase monitors with a minimum resolution of 1080P although high definition (i.e. 4K) displays are preferred. The computer will also need to have a high-quality graphics card and either HDMI or DVI inputs.

We found the following setup to be the most efficient for our plan review staff:

- 1x Computer (Laptop or Desktop)
- 1x 40-inch 4K resolution monitor (Used for viewing the plans)
- 1x 28-inch 1080P monitor (Used for making comments or checking references)
- 1x Docking station for use with a Laptop to be able to easily plug into the displays.

The product specifications we recommend are:

Desktops

- Dell XPS 8900 Desktop
 - Intel Core i7-6700 6th Generation Quad-Core Skylake up to 4.0 GHz
 - 16GB DDR4 Memory
 - 256GB SSD + 2TB SATA Hard Drive
 - 2GB Nvidia GeForce GT 730
 - Windows 10

Laptops/Tablets Hybrids

- Microsoft Surface Book (Power users)
 - Intel Core i7
 - 16 GB memory
 - 512 GB SSD
 - Windows 10
- Microsoft Surface Pro 4
 - Intel Core i7e
 - 16 GB memory
 - 256 GB SSD
 - Windows 10



Docking Station

- Dell D3100 Docking Station
- Microsoft Surface Docking Station (For Surface Pro & Books Only)

Displays (One 4K monitor and one 1080P monitor)

- Philips BDM4350UC
 - 4K (UHD) Resolution
 - 43 inch
- Philips BDM4065UC
 - 4K (UHD) Resolution
 - 40 inch
- ViewSonic VA2855SMH
 - 1080 (HD) Resolution
 - 28 inch

3.0 SOFTWARE

Many of the electronic systems that are currently being used by local jurisdictions allow the user to open and mark-up the construction documents directly within the system. While this allows the plan submission, plan review, and permit approval to all occur in one location our office has found that this often slows down the review process. For some reason, the review software that is integrated within these systems tends to work much slower and does not have the capabilities of other software that is intended solely for performing the electronic plan review.

The two most common programs for performing electronic plan reviews are Adobe Acrobat Pro or Bluebeam Revu. Not only is Bluebeam Revu less expensive than Adobe Acrobat Pro, it is much more user friendly from the standpoint of a plan reviewer. It allows for easy markups to the plans, allows multiple screens to be open at once, can be customized to include your most commonly used items in a toolbox, etc. Currently a single license for this program can be purchased for around \$270.00. Our office has used this program for several years and we have found it to be much more efficient for performing electronic plan reviews than other software systems that we have used.

4.0 FILE REQUIREMENTS

Most electronic reviews are performed using Portable Document Format (PDF) files rather than actual AutoCAD or REVIT files. We recommend that jurisdictions require these PDF files to be compatible with Adobe Acrobat Version 9.0 or later. The PDF security settings should also allow reviewers to mark up the file, create notes, and to insert or remove sheets.

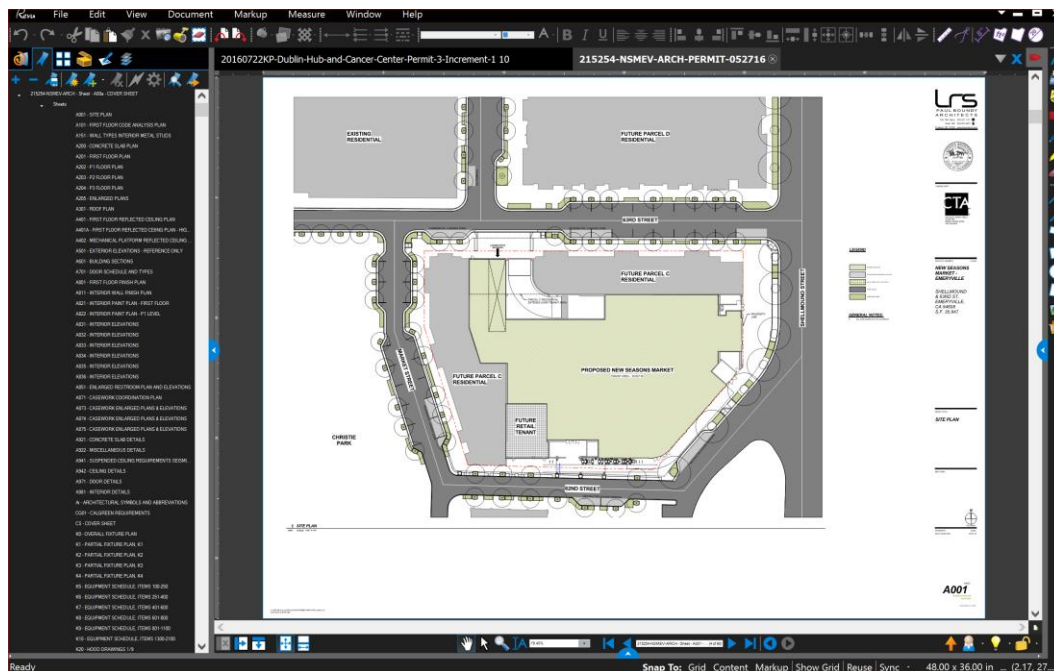
In order to make the plan review process easier for the plan reviewer we also recommend that the jurisdiction require the PDF files to be submitted in the following format:

- a) All sheets should be oriented so the top of the page is always at the top of the computer monitor and set to landscape.



- b) Pages should be Indexed (i.e. “Bookmarked”) on every submission. The index should note the sheet number as well as the title/description of each sheet (see Figure 1 for an example).
- c) The title block of each sheet shall include a 3” x 3” space for the placement of jurisdiction’s approval stamp. This space should be provided at the same location on each plan sheet.

Figure 1. Sample PDF Configuration



- d) Building plans shall be fully dimensioned. This shall include, but not be limited to, framing plans.
- e) All text shall be easily readable when set to print. Clarity must be equivalent or better than Arial, Gill Sans, or Tahoma with a font size of 10pt.
- f) PDF documents produced by scanning paper documents are inherently inferior to those produced from an electronic source. Documents which are only available in a paper format should be scanned at a resolution which ensures the pages are legible on both a computer screen and when printed. It is recommended that scanning be done at a minimum of 150dpi and a maximum of 300dpi to balance legibility and file size.
- g) PDF documents should be compressed after they have been compiled in order to reduce the file size.