ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA

# **Practice Guideline:** Exchange of Electronic Information

**April 1996**

**IMPORTANT:**

The AIBC transitioned to the Professional Governance Act effective February 10, 2023. **This document has not yet been updated to reflect the new legislation and updated Bylaws**. Although there may be outdated terms and references in this document, note that the **general concepts and requirements remain the same**. If you have any concerns or questions, please contact practiceadvice@aibc.ca. For more information about the transition, go to aibc.ca/PGA.

## 1.0 Introduction

1.1 Increasingly, business information is being transferred electronically via modems and disks. Architecture offers no exception. Practitioners are being asked to provide information on CAD files not only for their consultants but also for clients, contractors and subcontractors.

1.2 Two central and opposing issues have developed with regards to this new technology. The first issue has to do with data omission and copyright protection, because the information can be changed and transferred so easily. The second issue has to do with file exchange standards, because the information is hard to change and awkward to transfer.

1.3 This Practice Guideline is intended to provide background information; an outline of the issues and implications of electronic file transfer; and general advice for handling this kind of information.

## 2.0 Background Information

2.1 The computer industry introduced CAD as a solution for the development, transfer and maintenance of graphic information. The ultimate promise is a virtual word that accurately mirrors the real world: as it could be, as it is, as it was, in detail and in whole. In a few decades, graphic media have changed from the pen and ink technology of a pre-industrial society, to the electronic technology of an information society. In the rush to modernize unrealistic expectations have been created and contractual relationships can be overlooked.

2.2 These problems are not new or unique to architecture. A clause about information omission and copyright protection was (and still is) standard on the title-block borders of many firms' drawings long before CAD. Dimensioning standards and metric standards, after years of debate are yet to be agreed upon, varying from job to job, firm to firm. In the computer world, transferring the 'written word' across applications, across platforms, across time can be challenging even for experts, while much of the debate around CAD standards involves users of the same software. Copyright, privacy

and information integrity are problems both for the computer industry itself and for users of the information.

## 3.0 File Use and Concerns

3.1 When an architect develops electronic files for a project, the base information can be used by other parties for a variety of other uses.
This includes background information for consultants, promotional material, facilities management material, background information for shop drawings and base information for 'as built' drawings. While these are all legitimate uses for this information, a number of concerns can arise from this arrangement.

3.2 First, while other parties may benefit from these files, developing architectural files to suit the needs of other parties will cause additional costs and complexity. The information relevant to a client, an illustrator or a municipal engineer may vary widely from the information relevant to an architect, with regard to nature, extent and presentation.

3.3 Second, the files may not be accurate: last minute changes may have been dimensioned properly but not scaled properly (a familiar standard practice), the size of details may be exaggerated for graphical clarity; or background information may not have been updated. This condition can cause confusion amongst other parties with different expectations and uses for the files.

3.4 Finally, where there is no contractual relationship, such as between the architect and the contractor or subcontractors, these are legal issues of control and copyright of information that need to be addressed before transferring information and /or allowing its reproduction and/or modification.

3.5 The situations that might arise from these concerns include:

3.6 Client demands files to be developed on a specific software or a CAD standard that the architect does not normally use, causing unfair competition (i.e. only certain firms can be engaged) or (if the architect accedes) loss of productivity and unrecovered conversion time and expenses for limited use.

- Client takes your files, copies them, changes some of the information an uses them again (perhaps on other projects) without your permission.
- Client takes your files, scales the information for leasing arrangements, later finds the drawings are not accurate and are not formatted to facilitate "net" area takeoffs.
- Client takes design files and proceeds with working drawings on its own.
- Contractor takes files and scales information that looks fine when plotted but is incorrect at more detail.
- Contractor takes files for 'as built' drawings and neglects to modify information properly.

- Subcontractor uses diagrammatic information or old information from a subconsultant's file to develop detailed shop drawings; then scales information incorrectly not thinking to check actual situation on site.

3.7 Again, many of these situations echo the concerns with graphic material using manual techniques, the differences being the ease of duplication, extent of sanctioned use and expectations regarding accuracy and universal implementation.

## 4.0 General Advice

4.1 While each situation must be judged individually, some basic recommendations can be made:

4.1.1 Be clear with clients about the specific nature of construction drawings and charge for extra services needed to facilitate the clients' needs for information organization. Find out specifically what your clients' requirements are. Often they will want simple outline drawings for facilities management (in which case, working drawings are not appropriate). Preparing and maintaining this information yourself may be a marketing opportunity, a way of staying in touch with your client, or a source of needed revenue in slow periods. It also leaves control and continuity in the architect's informed hands, avoiding transfer issues.

4.1.2 Consider removing from the files your title -block border and your notes before sending files, both for your protection and for the convenience of others; or simply remove a portion of the border for identification.

4.1.3 Do not include architect's seal or signature in files!

4.1.4 When sending any files include a disclaimer with the transmittal regarding electronic information that states:

- This file was sent for reference only.
- This file contains copyright material, belonging to the architect.
- The file has been developed for a specific purpose; use for purposes other than what the file was developed for are not sanctioned.
- Background information from other disciplines may not be updated.
- Do not scale information.
- Read the full set of drawings as a whole document. Architects should consult legal advice for specific wording and conditions. Keep a hard-copy record of transferred files, dated, noting purpose and terms.

4.2 For transferring information via modem, enclose files in an electronic envelope with a disclaimer and agreement to use files as properly intended. The receiver of the file is prompted to agree with conditions before the file can be opened. While this is technically feasible, the institute does not have specific software available for this purpose, nor can we suggest any at this time. Architects should consult software vendors for specific applications on various platforms.

4.3 If you have serious concerns about your files being copied or modified, simply 'locking' a disk or a file is not a complete deterrent. A file can easily be copied and unlocked. For these situations a PDF (portable document format) file appears to be a possible solution. This file format reportedly works on various platforms and the reader (for the file receiver) can be distributed freely. The document can be viewed, printed and presented, but not modified.
The document generator, which works like a printer and driver, must be purchased. For practical purposes this should make your files safer, however even with the PDF format a motivated hacker would be able to generate a CAD file from this information. (The best bottom-line solution, consistent with legal advice received by the AIBC, is to avoid providing other parties with your electronic information.)

4.4 Working with other parties' CAD standards can be an onerous task. While there has been some discussion of a 'universal CAD standard' or an 'AIBC CAD standard,' to facilitate the smooth transfer of information, at present this is seems unachievable both for technical and political reasons. It can be argued that standards with computer technology are a moving target; changing technology can render them obsolete overnight. Similarly, standards that develop around specific technology or software can actually impede development of better solutions. While a complete CAD standard is beyond the scope of this Practice Note, an outline of some issues may prove useful.

4.4.1 Timing. Adopting a client's CAD standard is best done after the project is completed or during translation. Preparing for the ease of transferring to that system is best done well in advance.

4.4.2 CAD standards. Many complete standards exist including those of the AIA, the OAA and PWC to name only a few. Many of these standards refer specifically to AutoCAD and architectural work. While each system has an internal logic, the vary in detail. It is useful to adopt one standard, however you will likely encounter many standards throughout your career.

4.4.3 Layering. Two general approaches can be identified. One describes building components (comprehensive) the other approach identifies line thickness and drawing elements only (easier to use). Within each of these schools of thought there are many variations; however, common to both systems, disciplines preface their layers with a unique letter, e.g. A-architecture, E-Electrical, F- Fire Protection, L-Landscaping, M-Mechanical, S-Structural, (even here variations creep in to deal with 'S'tructural and 'S'urveying, 'Interiors and 'Instrumentation).

4.5 **Colour and Lineweight**. Colour was originally used to assign different pens (Lineweight) in a plotter. The specific assignment was variable to add flexibility to the systems (also confusion). While pen plotters are seldom used now, the lineage of the technology lives on. If all specific colour assignments are removed from a file before transferring, a 'default file'for a specific client can be used to translate the file to the appropriate colour lineweights.

4.6 **Fonts.** Font definitions do not reside in the file, but in th application or operating system. If a font cannot be found when loading a file, a default font will be substituted. This is a problem if a high quality of reproduction is required, or if the original font contains specific glyphs such as fractions or abbreviations (centerline) and the meaning of the next is lost. Therefore do not use third party fonts for transferring information.

4.7 **Blocks and Symbols.** Symbols are used for repetitive items in a drawing (productivity). When one instance is changed, all other instances will change. Problems can arise from symbol names when files are combined or updated with two different symbols having the same name. While some experts argue it is prudent to 'explode', 'purge' or remove symbols from the drawing before transferring, layer information and attributes may change if they are not created or exploded properly.

4.8 **Paper Space.** Paper space is a feature introduced in AutoCad 11 that allows different scales and views of a model (base drawing) to be presented on one drawing. Other CAD programs have different approaches to this feature. Problems can arise when transferring between applications resulting in lost or hidden information. Restraint in using these features should be exercised for files that are to be transferred. Include documentation of your office CAD standards to assist others reading your files. A service bureau or third party macro can assist with many of these problems.

## Practice Guideline Amendment History (1996-2019)

2019: October. New graphic template. Renamed Practice Guideline, formerly Practice Note. References to Practice Note updated to Practice Guideline.

1996: First Edition

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