

Should
Technical Writing
be Beautiful?

Introduction

Technical writing is most commonly thought of as manual writing, electronic product guides, and machinery operations guidelines created by engineers at the last minute with few resources. However, this is an extremely diverse field that also includes educational textbooks, websites, software and scientific guides among a plethora of other options. With the vast diversity of the field, writers are often from as equally varied backgrounds.

The nature of being a technical writer is often thought of as not enough information, not enough assistance, and not enough time. The technical writer is faced with making a multitude of decisions about content, paper quality, design, and graphics all before an all too short deadline. In all of that, is it feasible to expect beauty in technical writing?

Identifying Bad Technical Writing

When a reader comes across “bad” technical writing they usually all have certain aspects in common.

The first problem would be that the document itself is poorly written. Product or procedural accuracy and descriptiveness are mandatory in technical writing (Joshi, 2009). When the content is confusing, lacks editing, or is missing information the reader will feel frustrated. Another way to alienate your reader is by not knowing whom you are writing for. If the author did not consider their audience, they might be talking over their heads, or giving too much or too technical information. General public manuals should be simple, clear, and non-technical (Schoff and Robinson, 1991).

MENUAL QX-1004 VER 3.2A

Thank for order 4CH PCI SOUND CARD(QX-1004),It's easy install to your PC system as follow step:

1. Turn off your PC system power.(disconnect the power cable)
2. Open the PC case(please be careful the screw,we need to use it assembly again) ,and find out the PCI slot.
3. Remove the PCI slot panel cover(nomatter it with screw or not,if with screw please keep the screw if not with screw please check the system parts box and find out the screw),and plug the QX-1004 on PCI slot with right position,please check the QX-1004 PCI bus(gold finger) is all plug into the PCI slot,put the screw to fix the card on the case.
4. Close the case with the screw you just disassembly the case,and plug the power cable .
5. Plug the speaker(up to 4pcs),microphone,aux in,MIDI/game connect.
6. Turn on the PC system power and booting just same as before ,find the CD driver (come with QX-1004) put into computer CD ROM DRIVER,and install again,the software will install itself.
7. If anything not correct please install again with very carefully.

Thank again to purchase our QX-1004,please feel free to give us advise how to improve our product.

**Above: Sample from TWC544 Manual and Instruction Writing
Right: Applied Research and Technology, Pro Gate User's Guide**

The second problem in bad technical writing is a lack of organization or intuition. Most readers do not want to read every part of a manual from cover to cover. They need intuitive headings and structure as well as clear organization through an index or a table of contents. Important diagrams should be as clearly labeled and easily accessible as a specific topic of text. Readers must be able to easily navigate a document backwards and forwards in order for it to be successful.

The third, and most often overlooked, problem is that the work is not aesthetically pleasing. The definition of aesthetics is “a particular theory or conception of beauty or art; a particular taste for or approach to what is pleasing to the senses and especially sight” (Merriam-Webster). There is no regulation for any field that says, “Beauty is these fonts, with these colors, in this format.” Every bit of aesthetics is individual and extremely subjective, which makes it difficult to standardize beauty in technical writing.

The other difficult aspect to creating an aesthetically pleasing document is that in many environments, someone with no graphic design training will be asked to produce a piece of technical writing with access to only a word processing program. Having easy access to computers has overtaken a need for visual expertise of a true desktop publisher. In house desktop publishing has grown with personal computers, desktop printers, and expanding software options. Where as in the past some-

PRO GATE USER'S GUIDE

Installation

The Pro Gate may be employed in a number of setups including:

- Between a mixer and a modular digital multi-track recorder, DAT machine, or analog recorder.
- In a mixer's channel insert points.
- Between signal processors and mixers or instrument amplifiers.
- Between electronic musical instruments (such as synthesizers, samplers, etc.) and down-line gear.

Note: The Pro Gate should be securely mounted in a standard 19" rack.

SAFETY PRECAUTIONS



Warning: To avoid the risk of shock or fire, do not expose this unit to moisture. Do not remove metal covers from chassis parts. Removing the chassis from its cabinet exposes extremely dangerous high voltages. There are no user-serviceable parts inside. Hazardous voltages are present inside the chassis. Refer all servicing to qualified personnel.

Caution: If your line cord (mains supply) becomes damaged and must be replaced, always replace it with the proper type.

POWERING UP

When the power switch is turned on, the red LEDs blink on and off for four seconds while the Pro Gate runs an internal diagnostic check. The software version is indicated in the LCD window at the same time. After four seconds, the unit is ready for use. The Pro Gate will power up as it was left at power down. For example: If you disconnect the power or turn the Pro Gate off while Channel 4's parameters are displayed, the Pro Gate will power up with Channel 4 selected.

When you turn on the Pro Gate, you may hear the internal relays click as they engage (they do this every time the power is turned on or off). This is normal. The Pro Gate is designed so that signal is allowed to pass directly through the unit by way of the relays if the power is inadvertently turned off or disconnected. These relays are also used in the Pro Gate's Bypass modes, assuring the best-quality audio signal, whether the Pro Gate is on or off.

If the Pro Gate does not follow the checkout sequence (even though the power is on, as indicated by some or all LEDs glowing), try performing a Factory Reset, as indicated on page 44.

Note: A Factory Reset will return all settings in all Songs to their factory default values. Once you have reset the unit, any customized settings are permanently lost.

one would write the content and seek out a printer to help them paste up the book for print, they now are able to write, layout, stylize, and print a booklet in considerably less time at less cost (Schoff and Robinson, 1991). Because many of the writers who are in charge of technical documents do not have any design background, they tend to err on the side of safe, and more and more, we

settle onto an inoffensive, generic look to skate by.

When surveyed, students in the Multimedia Writing and Technical Communication program at Arizona State University agreed that there is a growing need for writers to be more visually aware. Font choice depends on the publication method, colors can generate different emotions from readers, and visuals can carry the entire weight of a product. If technical writers have no training in graphics and design, there is huge risk of losing their audiences.

What is Good Design?

In the field of technical writing, learning the basics of good design, recognizing those traits in works we like, and implementing them in our own documents will help improve the quality and general reputation of technical documents. True designers can spend years learning their skills and honing their talents, but most technical writers can succeed by grooming their work with the basics.

According to Robin Williams, author of “The Non-

Designer’s Design Book”, there are four interconnected principals of design that will allow any designer to improve their work:

Contrast: The idea behind contrast is to avoid elements on the page that are merely similar. If the elements are not the same, then make them very different. Contrast is most often the most important visual attraction on a page- it’s what makes a reader look at the page in the first place.

Repetition: Repeat visual elements of the design throughout the piece. You can repeat colors, shapes, textures, spatial relationships, line thicknesses, fonts, sizes, graphic concepts, etc. This develops the organization and strengthens the unity.

Alignment: Nothing should be placed on the page arbitrarily. Every element should have some visual connection with another element on the page. This creates a clean, sophisticated, fresh look.

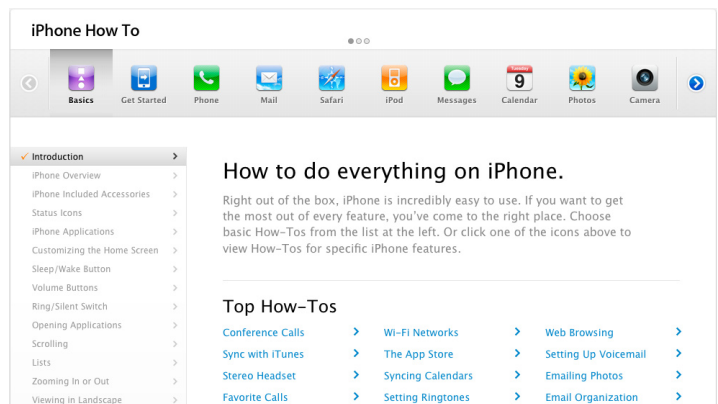
Proximity: Items relating to each other should be groups close together. When several items are in close proximity to each other they become one visual unit rather than several separate units. This helps organize information, reduces clutter, and gives the reader a clear structure.

iPod touch at a Glance



Your Home screen may look different, depending on the model of iPod touch you have and whether you have rearranged its icons.

iPod touch Included Accessories



Left: Apple iPod Touch user manual
Above: Apple iPhone online user manual

Generally, these principals are agreed upon across the design world. A wealth of blogs exist to discuss these elements and their need to become more prevalent in the

world of technical communication. Similarly, there are five goals the technical writer must keep in mind when designing a document:

1. To make a good impression on readers.
 2. To help readers understand the structure and hierarchy of the information.
 3. To help readers find the information they need.
 4. To help readers understand the information.
 5. To help readers maintain the information.
- (Markel, 1998)

How Important is Beauty?

We recognize the need for good design in websites, magazines, and advertising. Studies (Mayer, Stienhoff, Bower and Mars, 2006) have shown that students learn better when their textbooks are better designed and make better use of visuals. Product packaging can more often drive success than the product itself (Fung and Chong, 2007). Aesthetic satisfaction is a core attribute of usability- beauty clearly influences first impressions and the emotional aspects of design that attract consumers in the first place (Hall and Straub 2005; Hassenzahl, 2004).

In writing, the visual aspect has often been thought of as support for the words and information being presented, however, with rapid technological changes technical communication has increasingly begun to encompass a growing variety of media. The field has expanded beyond printed manuals for electronics to online databases, help sections and electronic built in reference guides, forcing us to not rely on words alone. According to Anne Wysocki, “if we understand content as words and understand visual presentation as theme of emotion or useful only as pointers to or supporting information, then we remain unable to see or explain what is asserted in the visual” (2001).

When it comes to technical writing, there shouldn't be a distinction between design and content.

The Resource Guide

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Online: <http://www.io.com/~hcexres/textbook/>

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Schoff, G. and Robinson, P. (1991). *Writing and Designing Manuals*. Second Edition. Chelsea, Michigan: Lewis Publishers, Inc.

Williams, R. (2008) *The Non-Designer's Design Book*. Third Edition. Berkley, California: Peachpit Press.

Wysocki, A. F. (2001) Impossibly Distinct: On form/content and word/image in two pieces of computer-based interactive multimedia. *Computers and Composition*. Vol. 18, pp. 209-234.

Addendum of Aesthetically Challenged Samples

Sample 1

This is a sample of a cost analysis from a proposal. Being able to attractively present straight data and statistics continues to be one of the largest challenges facing technical writers today. The numbers must be clear, the data must be easily interpreted and there cannot be any ambiguity with your findings. This leads to very boring charts and graphs placed into documents without any thought to their aesthetic.

COST ANALYSIS

This section of our proposal provides detailed cost information for the Waters 319 Interactive Terminal and the Waters' 615 Retail Processor. It then multiplies these major elements by the quantities required at each of your four locations.

319 Interactive Terminal

	Price	Maint. (1 yr.)
Terminal	\$2,895	\$167
Journal Printer	425	38
Receipt Printer	425	38
Forms Printer	525	38
Software	220	—
TOTALS	\$4,490	\$281

615 Retail Processor

	Price	Maint. (1 yr.)
Processor	\$57,115	\$5,787
CRT I/O Writer	2,000	324
Laser Printer	4,245	568
Software	12,480	—
TOTALS	\$75,840	\$6,679

The following breakdown itemizes the cost per store:

Store No. 1

Description	Qty.	Price	Maint. (1 yr.)
Terminals 16	\$68,400		\$4,496
Digital Cassette	1	1,300	147
Laser Printer	1	2,490	332
Software	16	3,520	—
TOTALS		\$75,710	\$4,975

Store No. 2

Description	Qty.	Price	Maint. (1 yr.)
Terminals 20	\$85,400		\$5,620
Digital Cassette	1	1,300	147
Laser Printer	1	2,490	332
Software	20	4,400	—
TOTALS		\$93,590	\$6,099

Price		Maint. (1 yr.)
\$72,590		\$4,777
1	1,300	147
1	2,490	332
17	3,740	—
	\$80,120	\$5,256
Qty.	Price	Maint. (1 yr.)
	\$76,860	\$5,058
1	1,300	147
1	2,490	332
18	3,960	—
	\$84,610	\$5,537
Qty.	Price	Maint. (1 yr.)
	\$57,115	\$5,787
1	2,000	324
1	4,245	568
1	12,480	—
	\$75,840	\$6,679

izes all costs:

Location	Hardware	(1 yr.)	Maint. Software
Store No. 1	\$72,190	\$4,975	\$3,520
Store No. 2	89,190	6,099	4,400
Store No. 3	76,380	5,256	3,740
Store No. 4	80,650	5,537	3,960
Data Center	63,360	6,679	12,480
Subtotals	\$381,360	\$28,546	\$28,100
TOTAL	\$438,416		

DELIVERY SCHEDULE

Waters is able to deliver 319 Interactive Terminals and 615 Retail Processors within 90 days of the date of the contract. This can vary depending on the rate and size of incoming orders. All the software recommended in this proposal is available for immediate delivery.

Walter E. Olliu, Charles T. Brusaw, and Gerald J. Alred. (2001) *Writing That Works*. Seventh Edition. Bedford/St. Martin's

Tip: Had the author of this proposal incorporated colors and given more thought to alignments as well as fonts, we would be more likely to read the data- even without graphics.

CHAPTER 7
WELDING TO EXISTING STRUCTURES

1. GENERAL.

When welding to reinforce existing structures, several areas require investigation and, in some cases, specific instructions. Other than load analysis of the structure to design the connections, several welding issues arise. These include weldability of the existing steel, the reduction of strength to existing members when being heated or welded, and the welding to existing weld deposits of unknown origin or made with FCAW-S electrodes. AWS D1.1 Section 8, and its supporting Commentary, provides applicable code provisions.

2. DETERMINING WELDABILITY OF EXISTING STRUCTURAL STEELS.

a. Investigation. Investigation of weldability is generally warranted for buildings constructed prior to 1945, although structural steels were not manufactured specifically for welding properties until A373 and A36 came into use in the early 1960's. The weldability of steels between these periods is generally considered sufficiently weldable.

b. Carbon Equivalency.

(1) The most reliable method to establish chemical composition for determining carbon equivalent values is to remove samples from various members at selected no- or low-stress locations, then analyzed spectrographically for composition. Portable spectrographs may also be used, although only optical emission spectrography systems currently provide sufficient accuracy for measuring carbon content. The laboratory analysis report should list the quantities of each of the elements in the selected carbon equivalent equation, even if the percentage reported is zero.

(2) Other methods, although less reliable, include spark testing and weld sample tests. Spark testing applies a grinding wheel at approximately 5000 rpm to the steel, then observing and characterizing the color and nature of the sparks off the steel. Weld sample tests include welding small test plates to the steel, then destructively using a sledge hammer to break off the samples, if possible, and observing the nature of the fracture.

3. WELDING TO OLDER STRUCTURAL STEELS.

The poorer the weldability of steel, the greater the need for higher preheat and interpass temperatures, and the greater the importance of low-hydrogen welding. All welding to existing structures should be performed with low-hydrogen SMAW electrodes or with other wire-fed welding processes. Minimum preheat and interpass temperatures can be determined from AWS D1.1 Annex XI, or from technical literature.

4. INTERMIXING WELD PROCESSES AND FILLER METALS.

a. FCAW-S Deposits. Self-shielded Flux-Cored Arc Welding (FCAW-S) weld deposits contain

7-1

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6. HAZARDOUS MATERIALS.

When welding on steel having existing coatings, an investigation into the composition of the coating is warranted, unless all coatings in the vicinity of the welding are removed prior to welding. Zinc, used in numerous coating systems and galvanizing, produces noxious fumes. Some older structures may contain lead-based paints that must be removed using special hazardous materials precautions.

7-2

Sample 2

This 129 page document looks like these pages from start to finish. The headings are in all caps, but lack anything more visual (such as being bolded). The entire manual lacks color, graphics and anything to help break up the density of text.

TI 809-26
1 March 2000

When weld processes that use consumables mixed with FCAW-S deposits, there is the potential for hydrogen embrittlement. This is the result of the liberation of nitrogen during the welding process. Other weld processes, such as those used in the FCAW-S deposit, do not contain the amount of free nitrogen, which can embrittle the steel or

g weld deposits that will receive subsequent welding to the weld deposit is warranted. An aluminum content mixture welding procedures, design assuming interpass welding using appropriate FCAW-S should be

at this problem may not be limited to non-FCAW-S processes in a single weld joint may also occur in new joint selection, or other reasons.

R CONCERNS WHEN WELDING UNDER LOAD.

temperatures in steel reduce both the yield strength (F_y) and the ultimate strength (F_u). F_y and F_u are at this level are rarely used, but localized temperatures for brief periods. As a general guide, these temperatures approximately 25 mm (1 in.) by 100 mm (4 in.) trailing the weld puddle. Steel res that will not significantly reduce the steel's

When welding under load, consideration should be made for the effect on the steel. When welding parallel to the applied stress, the area of the unaffected steel. When welding perpendicular to the load, consideration should be made for the effect on the steel. It may be necessary to stagger welding operations, use shorter sections of weld and then allow cooling, or use lower heat input procedures.

TI 809-26
1 March 2000

PART 8

WELDING AND INSPECTION

When specifying the requirements of the Quality Control and Inspection Plan, the Engineer must specify the requirements for the welding process, but requires only "Fabrication / Erection" if the Contractor. "Verification Inspection" is the name of the inspection operations to be used in the contract documents.

PROCEDURES.

When specifying, for the welder and inspector, the welding process and the welding code and applicability to the joint. The Engineer must specify the welding process and the welding code and applicability to the joint. The Engineer must specify the welding process and the welding code and applicability to the joint. The Engineer must specify the welding process and the welding code and applicability to the joint.

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d. WPS Prequalification Limits. Prequalified WPSs need not be tested using the tests prescribed in AWS D1.1 Section 4. The contractor may develop WPSs based upon manufacturer's recommended operating parameters, verified by the contractor's experience and testing as desired. To be prequalified, the welding process must be prequalified (SMAW, FCAW, GMAW except short-circuiting transfer, or SAW), the weld details must meet all the requirements of AWS D1.1 Section 3, and welding parameters must meet the provisions of AWS Table 3.7. This includes the use of the prequalified groove weld details in AWS Figures 3.3 and 3.4, minimum prequalified PJP groove weld size in AWS Table 3.4, and minimum

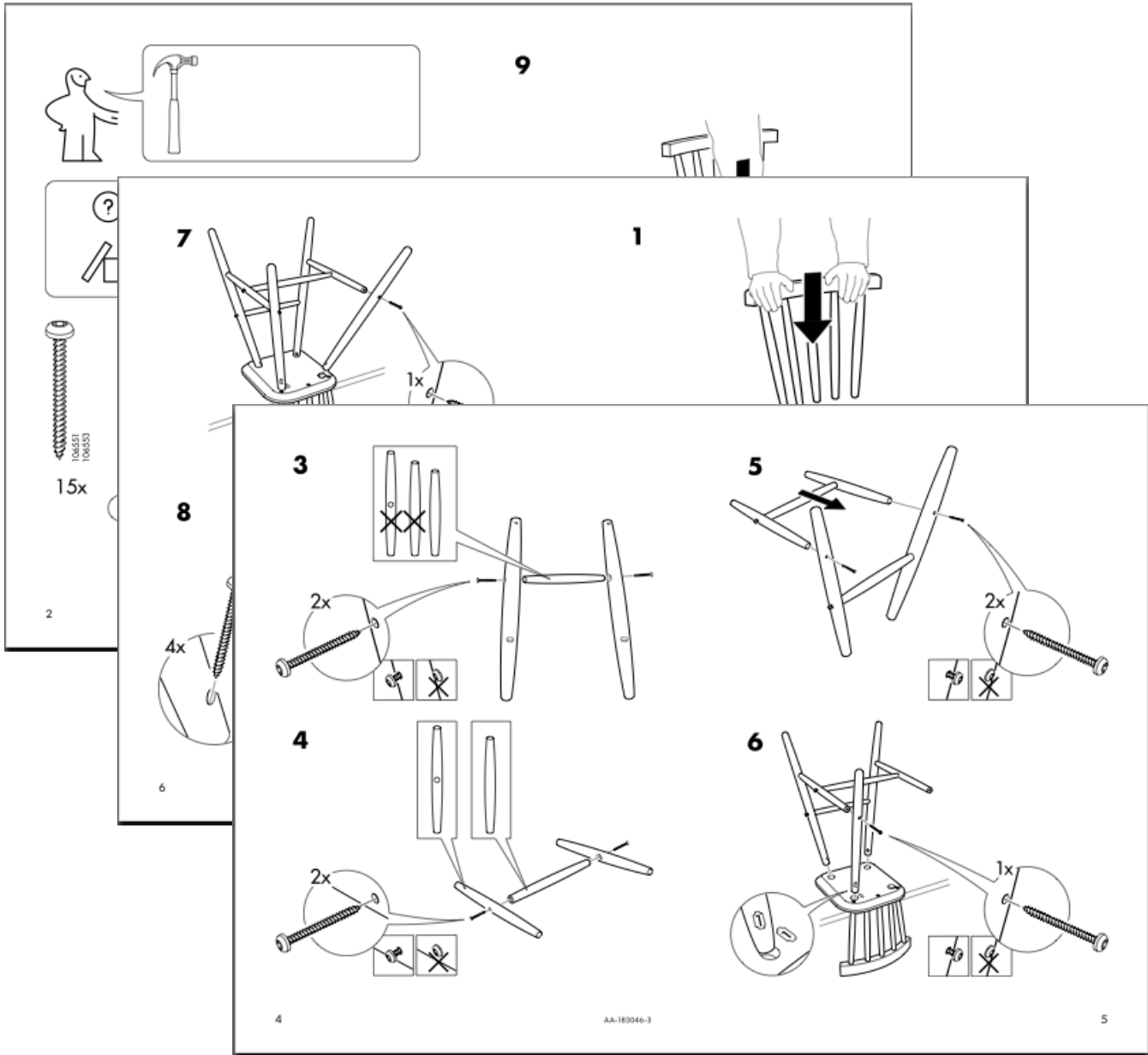
8-1

Tip: Had the author of this document even used multiple columns on the page to help break up the long lines of text, it might not seem as intimidating.

US Army Core of Engineers. (2000) Technical Instructions: Welding- Design Procedures and Inspections. Directorate of Military Programs, Washington, DC

Sample 3

IKEA is as equally loved as it is disliked for their pictorial instructions. Without any labels or even some kind of color coding system, the instructions can be very ambiguous. These directions, from the IKEA web site at not even in numerical order when viewed as a PDF.



Tip: If IKEA were to color code their instructions and put those colors on the small screws and nails, some of the confusion would lessen. Also, these instructions should be re-organized for the web site, not everyone will print this.

IKEA Systems B.V. (2005) Agam High Chair