Desktop publishing applications for corporate graphic standards

Patricia Beckmann

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Rochester Institute of Technology

A Thesis Submitted to the Faculty of
The College of Imaging Arts and Sciences
in Candidacy for the Degree of
MASTER OF FINE ARTS

Desktop Publishing Applications
for Corporate Graphic Standards

by Patricia A. Beckmann

November 26, 1993
Advisor: James VerHague
Date: 6/6/93

Associate Advisor: Robert Keough
Date: 12/9/93

Associate Advisor: Joe Watson
Date: 12/9/93

Interim Chair, Graphic Design Department: Robert Keough
Date: 12/9/93

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Acknowledgments

I cannot begin to express my gratitude to my thesis advisors: Jim VerHague, Bob Keough, and Joe Watson. Not only for their extreme patience and understanding but for giving me that second chance and making dreams come true. Thank you.
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PART I — INTRODUCTION

The purpose of this thesis was to explore the possibilities of desktop publishing as applied to business graphics. Graham Manufacturing is an established company whose existing printed matter I used in a “before and after” approach.

The intended result is improved quality and consistency of a variety of printed material including a specification sheet, newsletter, internal newsletter, manual and employment application. Each piece could be produced economically in-house and each is based on a template and guidelines which would enable others to update or change the information as necessary.

This project was entirely hypothetical. I received information and input on the work from Graham employees but it was never with the intention that any of this work would ever actually be used by them. While they were helpful, it was also obvious that they were not particularly interested in the work I was doing since they are happy with their publications already and do not have any desire to change them.

I chose this particular company because I have been exposed to their publications for years since my father is a former executive. Having done a number of free-lance projects for them over the years, I started with a good basic knowledge of their attitude and approach to graphic design. The other reason I chose their publications as my “raw material” is because it is about as dry and uninteresting as you can find. The challenge would be in expressing this information in a way that is both inviting and functional. As designer, it would be my responsibility to redefine the problem; to find something about this body of work which would make it unique.

The work was, almost exclusively, produced using a Macintosh SE computer, Hewlett Packard LaserJet 4M printer, Aldus Pagemaker and FreeHand programs.
PART II — RESEARCH

Graham Manufacturing designs and manufactures vacuum and heat transfer equipment, most of which is custom built to meet the individual customer's needs. The principal markets for this equipment are the chemical, petrochemical, petroleum, refining and electric power generating industries. Graham has sales representatives located in over 40 major cities in the United States and abroad. In 1992, they employed 636 people and net sales were $62,732,000 — both numbers considerably lower than 1991 due to the recession and its negative impact on the company.

Graham has the computers, laserprinters and people capable of producing printed material far superior than what they do produce. Yet management fails to see any reason to spend the time or money on such things.

Corporate Identity

Marks and logos, as we know them today, first began with the rise of industrialization and its manufactured and packaged goods. In the 1930's a number of graphic designers became involved in what would later become known as corporate identity design. After World War II, as the United States began a period of prosperity, the first firm dedicated to trademark and brand design was created. Visual identity design reached a high point during the 1950's and 1960's when designers started to go far beyond the logo or trademark. The overall appearance of promotional material became more important to the visual identity than just merely using a particular logo.  

In the busy, crowded world in which we live today, it is necessary for a corporation, large or small, to pull its visual elements together in a powerful way or lose out to the competition. The company that can not be bothered with its image already has one which is apparent and, most likely, it is a negative one. Since about 83% of the information people acquire is done so visually, the company that is inadequate visually is sure to blend into the crowd.

Processing information has become a primary aspect in business. Both obtaining information on which decisions will be made and communicating information on which customers, employees, shareholders, etc. will make decisions. A corporation's success often depends on management's ability to comprehend and deal with the problems of communication. Not only is there the physical appearance of a corporation's identity system but also the subliminal, intangible "feel" that suggests such attributes as power, quality, stability, etc.

The more consistent a company is in presenting itself, the more clearly defined is the
image that the public perceives. This is understandable when you consider the constant onslaught of information today and how limited interest may be in a particular company.

There is also a cumulative effect which comes from uniform graphic appearance. An advertisement, newsletter, manual, etc., is carried along by the one that preceded it and helps to support then one that will follow it by reinforcing and complementing each other. Consequent financial savings are another benefit of this approach.5

Unfortunately, most of a company’s concerns are with more tangible items such as assembly lines, balance sheets and company cars. All too often the importance of a strong corporate identity is overlooked or neglected since the benefits are not easily measured in dollars and cents and physical gain.6

**What Is Desktop Publishing?**

Desktop publishing is the creation of words and graphics on a personal computer, combined into finished pages and printed to a laser printer.7 The Macintosh personal computer was introduced in 1984 and with the introduction of the laser printer, Aldus PageMaker and Postscript in 1985 — desktop publishing was born. Postscript is the page description language that describes a page, including the typography, in terms of mathematical equations that can be interpreted by a printer or other output device.8 Quality is determined mainly by the resolution of the output device, the higher the number of dots per inch (DPI), the cleaner the output will appear. The typical laser printer is 300 DPI while a Linotronic is capable of up to 2540 DPI.

Much of the first wave of the desktop publishing revolution has been in the areas of internal corporate publishing and small organization newsletter production. These areas have proven to be fertile testing ground for refining the technology necessary to produce the low-cost, high quality, easily-formatted publications that desktop publishing was intended for. Undoubtedly, they will continue to be a major segment of the desktop publishing industry in the years to come.9
Advantages of Desktop Publishing

Saving Time
In desktop publishing, the production process is quicker and easier than in the traditional process of pasting up typeset pages. Traditionally, a great deal of time-intensive hand work was required for even minor corrections or changes. In addition, formats and standards can be established so that less time is spent laying out and designing pages from scratch for each new project.

Increased Control
In traditional publishing, more people are required to produce a publication, i.e.: the designer, typesetter, and paste-up person. With desktop publishing, the same individual can produce a publication virtually single-handedly and has control over the most minor details.

Flexibility
Printed pages can be changed to meet specific needs while remaining cost effective. For example: With minor alterations, the manual for one product can become the manual for another.

Documentation / Information Storage
This thesis is the perfect example. Virtually everything was done on this computer, all the stages of the creation of each piece is documented and saved on disk and even includes the date and time they were saved. Not only was that an important part in the actual creation process, it has been an invaluable tool in the writing of this report.

Cost Effectiveness / Improved Quality
If you needed only 10 or 20 or even 100 of a printed item for whatever purpose, a commercial printer would not even be a consideration since it would be outrageously expensive. With desktop publishing, it is possible to produce just a few printed pieces without this expense while still producing a quality product.

Enhanced Problem Solving
A desktop system can be economically used to explore a greater range of alternatives than was ever possible with traditional methods. Design possibilities, type size and fonts changes can be made and the results seen immediately. Ideally, this should also result in better design solutions.
Disadvantages of Desktop Publishing

The biggest disadvantage in using desktop publishing is that the job of creating a publication is taken out of the hands of professionals and put in the hands of amateurs. Many companies have discovered that this encourages more creativity than their image can handle. Since the responsibility of creating printed material is becoming distributed to different departments in an organization, without set formats, the resulting publications may not even look like they are the product of the same organization.

Corporations are responding to this dilemma by establishing design standards so that different kinds of documents and those being produced by different individuals will have a consistent look.

The Grid System

Grids are used in graphic design to indicate the position of text blocks, images, titles, subheads, etc. on a printed page. The principles of the grid system were developed and used in Switzerland after World War II. This technique has been the dominant approach to design for at least twenty years because it is so effective in organizing the page and speeds up layout time. Computers are particularly well matched to this system, the most basic unit consisting of a square pixel.

Without the use of a grid, the designer would have to come up with a new plan for each page. This would not only be time-consuming but the pages would be inconsistent.

Effective use of a grid results in maximum legibility through the simple means of orderliness, clarity and simplicity, regardless of the subject matter and complexity of the technology. Thus, the effective use of a simple grid is much better than making a mess using a more complicated one.

A grid that is not flexible enough will result in a very boring design. A grid that offers too many options is about as useful as not using a grid at all. Each new design problem presents its own requirements for an appropriate grid. What the text says, who the reader is, how the piece will be produced are among the items that should help determine the grid. A corporate newsletter will require a conservative grid with moderate column widths, gutters and margins. Another consideration is who will be using the grid. If it is designed to be used by non-designers, it is necessary that it does not require a great deal of decision making to be used properly.

Designers should not feel restricted by a grid. It is possible to break the grid design when necessary to add variety and emphasis to the design.
PART III — THE WORK INVOLVED

A General Overview
Before I began any design work on this project I spoke to the president of the company about the intended results so that I would have some goals, a direction to go in. I asked him to simply name a few things that he would like this body of work to project — adjectives, whatever he felt was important.

They were:
1) Innovative
2) Professional
3) Fair Prices (I would not consider it a goal but he did)
4) Stand Out
5) Get An Edge On The Competition
6) New and Different

Since this was an entirely hypothetical project, these seemed like easy enough goals. Nothing out of the ordinary for a corporate identity project. Through experience with them in the past and in looking over the majority of their already existing printed material, my only additional thought was that they are very conservative, which contradicted “new and different.” Somehow I needed to find a happy medium between the two.

I began the work by typesetting (in PageMaker) all of the copy for the publications that I was to redesign — the ideal way to become very familiar with the information I was to be working with. I was not concerned with the format, type style, or size of the copy since it would be changed thousands of times before completion. I did, however, struggle to get the spelling and punctuation as close to perfect as possible. These two items are either right or wrong and will not be altered in the design process. The spelling checker in the PageMaker program is an invaluable tool in finding typographical errors.

Typesetting and Typography
Traditionally, the word typography meant the technical process of printing writing through the use of hot metal type to produce printed pages. Today the term typography has expanded to mean the transmission and communication of alphabetical and numerical information through a variety of methods which includes printing, video and computer display.
The act of typesetting itself seems to be a purely mechanical function: You type in the words and select your type specifications and the computer and printer will do the rest. However, the quality of a publication depends on the skill of the typesetter not just on the fonts and printer resolution.18

The principles behind what may seem to be the secret, specialized practice of the professional typographer and typesetter is actually within the domain of every literate person.19

Several of the most often made mistakes are the use of "typewriter" (" ") quotes instead of proper quotes (""), using two spaces after a period instead of one, and using double hyphens (--) instead of em dashes (——).20 Another important thing to remember is to position quotes correctly in relation to other punctuation. Commas, periods, exclamation points and question marks go inside quotes when part of a quoted statement, colons and semicolons belong outside.21 Still another important rule to keep in mind at this stage is consistency. For example: do you leave a space or no space before and after a dash? Either is acceptable…as long as it is done consistently within a publication.

Being able to type and being a good typesetter are not the same. Typesetting has always been a specialized craft and now that job is being taken out of the hands of professional typesetters and put into the hands of anyone with a desktop publishing system. It is the responsibility of this new generation of publishers to acquire these skills.

Starting the Design

I started out by trying to do one piece at a time before going onto the next. However, since I wanted to have a certain amount of continuity and cohesion between each of the pieces, I then began to go back and forth between them. In order to simplify the process for this report they are documented individually.

The first major design decision was to decide on the typefaces that were to be used. My initial thought was to use a serif for the body copy and a bold sans serif (most likely Helvetica) for the headings. I had pretty much planned on using Garamond (what you are looking at right now) for the body copy before anything was actually started. Once the copy was typed into the computer and I started experimenting with the typefaces a little bit, I found myself very drawn to Rockwell Bold for a possible typeface for the headings. Those two would not work together since two different serif typefaces rarely do. Also, the company who this work was (hypothetically) for is extremely conservative, using the very cliché Helvetica/Times combination for virtually everything.
I found myself questioning why I was almost predetermined to use Garamond for the body copy and a bold sans serif for headings... and came up with some poor reasons which I'm embarrassed to admit:

1) That's what I always do
2) I bought it just for this project so I should use it
3) Garamond is a beautiful typeface and I especially like the W's and the numerals
4) That's what most other designers would do
5) I never used Garamond for a project before
6) It's a safe combination

At that point I changed my thinking. I have always tended to be very conservative when it comes to combining typefaces and this seemed like a good opportunity to not to be. It was also a challenge to find a typeface that would go well with Rockwell but still be realistic enough to use for a company like Graham.

This is Rockwell Extra Bold
THIS IS ROCKWELL EXTRA BOLD

Typefaces are like abstract pictures; each carries a message of style. Rockwell is a no-nonsense typeface that seems to project strength and power, attributes appropriate for an engineering firm.

Since it is a distinctive square serif typeface, I needed to find a typeface that would compliment it by not being too similar or obvious. The simplest way of combining typefaces from different families is by combining opposites. It was also necessary to choose a typeface for the body copy that was suitable to the content of the text itself.22

Some of the possibilities were:

Eras crossed my mind very briefly. It is too distinctive to work well with Rockwell. Because of its unusual characters and high x-height it would have been too difficult to read.

Avant Garde was another thought but it too is difficult to read because of its high x-height, it is not space efficient, and I did not like it combined with Rockwell.

Helvetica was a good possibility but I shied away from it because it is standard on every laser printer and very overused. It would have been a safe choice which is the biggest reason I was reluctant to use it.
Futura I liked. It is distinctive enough to be slightly different but still legible and conservative enough to work for the pieces I was designing. It had a clear, modern, functional appearance that was appropriate. I was still a little unsure of it at first but there was comfort in knowing I could change it if I decided it wasn’t right later on.

The “Granite” Pattern

Ever since I started working on Macintoshes, one of the things that intrigued me the most was the fills and patterns available. While it would be possible to make use of some of these kinds of patterns using traditional paste-up methods, it would be very complicated and difficult from a production standpoint.

Since I was limited to black and white, a resourceful use of gray values would help to create more “color.” It has always been the case in history that new technology offers new opportunities and fresh inspiration for designers. These patterns and fills alone have created a wealth of possibilities that would not have been possible even ten years ago. Creative use of patterns can also be used to create a memorable impression on the reader.

The background pattern that was to become an on-going theme in this thesis is a custom fill from FreeHand that can be altered in minimum and maximum darkness and lightness from zero to 100. It was created in FreeHand in the size needed, exported as an EPS file, and placed as a graphic in PageMaker. The following is an example of how this one fill could be customized to create the effect desired.
Restrictions

I chose not to alter the Graham logo. I did not feel that it would have been pertinent or beneficial to this thesis to do so. Having to work with it rather than creating one that would have been easier to work into the designs was a challenge in itself.

Another restriction was that I would not change the copy, the content is exactly as it was found in the originals. Graphic designers often have the opportunity to create copy to fit a design. In this thesis project it was necessary to create the designs to fit the copy. It does not matter which comes first, it depends on the nature of the job. In this case the copy was to take preference over the design.25 Had I allowed myself to change things around as was convenient to fit the design, it would have been much easier. There always seemed to be a heading that was just one word too long to fit, a little paragraph here and there that there just wasn’t room for, an illustration or photo that was a different shape than the rest, forcing myself to deal with these obstacles rather that just delete them or alter them to my needs made for a much more worthwhile learning experience in the end and was a more realistic approach.
The Specification Sheet

The specification sheet is laser printed in-house at Graham on company letterhead and sent to a customer or potential customer. Certain information remains constant all the time and some of it will change depending on the piece of equipment and its variables.

| GRAHAM MANUFACTURING CO., INC. |
| HELIFLOW HEAT EXCHANGER SPECIFICATIONS |
| CUSTOMER: NONE | EGI: SAMPLE |
| CUSTOMER REF: NONE | DATE: 01-08-1993 |
| ITEM: NONE | ENGINEER: GSB |

| PERFORMANCE | INSIDE COIL | OUTSIDE COIL |
| SPECIFIC GRAVITY | ETH.GLY. 50% | ETH.GLY. 50% |
| SPECIFIC HEAT | 1.046 | 1.042 |
| (BTU/BB L°F) | 0.828 | 0.795 |
| THERMAL CONDUCTIVITY | 0.240 | 0.241 |
| (BTU/HR FT F) | 1.992 | 2.833 |
| VISCOSITY (FILM FOR LIQUIDS) | |
| (CP) | |
| RATE OF FLOW | (GPM) | 12.0 |
| RATE OF FLOW | (PPH) | 6277.3 |
| TEMPERATURE ENTERING HELIFLOW | (F) | 130.0 |
| TEMPERATURE LEAVING HELIFLOW | (F) | 110.0 |
| OPERATING PRESSURE | (PSIG) | 5.4 |
| DESIGN PRESSURE | (PSIG) | 7 |
| HYDROSTATIC TEST PRESSURE | (PSIG) | 50.0 |
| DESIGN TEMPERATURE | (F) | 150.0 |
| CONNECTION SIZES | (IN) | 1 1/4 |
| CONNECTION TYPE | MNPT |
| TOTAL DUTY | (BTU/HR) | 103952.6 |
| TOTAL SURFACE SUPPLIED | (SQ.FT.) | 12XF-14S |
| MODEL | |
| TUBES | 3/8" DIA -18 BWG. COPPER |
| MANIFOLDS | 70/30 CUNI |
| BASEPLATE | CAST IRON |
| CASEMS | 70/30 CUNI |
| TUBES TO MANIFOLD JOINT | BRAZED |
| CODE OF CONSTRUCTION | GRAHAM STANDARD |
| GENERAL | |
| PRICE: F.O.S. BATAVIA, N.Y.: |
| SHIPMENT: |
| WEIGHT (LBS): | 105 |
| REMARKS: DRAWING PER S-1093 |

Before starting to work on a new design for it, I needed to know what information stays the same and what changes. I also needed to find out what the different items meant in order to group them in the most logical manor.

The goals for creating a form such as this are simple:
1) It should be easy to read
2) It should be easy to complete
3) It should be easy to retrieve information from

ORIGINAL SPEC SHEET
These things were lacking in the original and to top it off it was an eyesore. Why use a laserprinter and then use Courier as the typeface? I wasn’t quite sure if it was the typeface, the use of all uppercase or the combination of the two, but I found it very difficult to try and decipher this information.

The first thing I did (after the information was typeset) was try to organize the information into a logical format which ended up being almost identical to the original.
The next thing was to differentiate between the information that would remain the same from one spec sheet to the next and the information that was to change. The information that remains constant is in the screened areas and the information that changes is left white.

---

### HEULFLOW HEAT EXCHANGER SPECIFICATIONS

**PERFORMANCE**

<table>
<thead>
<tr>
<th>Description of Fluid Circulated</th>
<th>Inside Cond.</th>
<th>Outside Cond.</th>
<th>Eth. Gly. 50%</th>
<th>Eth. Gly. 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Gravity</td>
<td>1.046</td>
<td>1.042</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Heat (Btu/lbf°F)</td>
<td>0.828</td>
<td>0.795</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Conductivity (Btu/ft²°F)</td>
<td>0.240</td>
<td>0.241</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity (cP for liquid)</td>
<td>1.992</td>
<td>3.830</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of Flow (GPM)</td>
<td>12.0</td>
<td>12.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of Flow (PPH)</td>
<td>6377.3</td>
<td>6000.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Entering Heliflow (°F)</td>
<td>130.0</td>
<td>65.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Leaving Heliflow (°F)</td>
<td>110.0</td>
<td>84.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated Pressure Drop (PSI)</td>
<td>5.0</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure (PSG)</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Pressure (PSG)</td>
<td>100.0</td>
<td>50.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydromechanical Test Pressure (PSG)</td>
<td>150.0</td>
<td>75.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Temperature (°F)</td>
<td>150.0</td>
<td>150.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection Sizes (IN)</td>
<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection Type</td>
<td>MNPT/FP</td>
<td>MNPT/FP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Duty (Btu/h)</td>
<td>103952.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Surface Supplied (sq. ft)</td>
<td>11.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>12XF-14S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tubes:** 3/8" Dia-18 BWG/Copper

**Code of Construction:** Graham Standard

**Remarks:** Drawing Per S-1903

---

The final step was to drop in the background pattern and tie in the logo and address information on the top. It took some experimenting to get the screen to coordinate...
## PERFORMANCE

<table>
<thead>
<tr>
<th>Description of Fluid Calculated</th>
<th>Eth. Gly. 50%</th>
<th>Eth. Gly. 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Heat</td>
<td>0.828</td>
<td>0.795</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>0.240</td>
<td>0.241</td>
</tr>
<tr>
<td>Viscosity (Film For Liquids)</td>
<td>1.992</td>
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</tr>
<tr>
<td>Rate of Flow (GPM)</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Rate of Flow (PPH)</td>
<td>6277.3</td>
<td>6091.8</td>
</tr>
<tr>
<td>Temperature Entering Heliflow (F)</td>
<td>120.0</td>
<td>85.0</td>
</tr>
<tr>
<td>Temperature Leaving Heliflow (F)</td>
<td>110.0</td>
<td>84.0</td>
</tr>
<tr>
<td>Calculated Pressure Drop (PSI)</td>
<td>5.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Operating Pressure (PSIG)</td>
<td>100.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Design Pressure (PSIG)</td>
<td>150.0</td>
<td>75.0</td>
</tr>
<tr>
<td>Hydrostatic Test Pressure (PSIG)</td>
<td>150.0</td>
<td>150.0</td>
</tr>
<tr>
<td>Connection Sides (IN)</td>
<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>Connection Type</td>
<td>MNPT</td>
<td>FNPT</td>
</tr>
</tbody>
</table>

### TUBULAR SPECIFICATIONS

- **Tubes**: 3/8" Dia 18 BWG/Copper
- **Code of Construction**: Graham Standard
- **Bbolts**
  - Cost Iron: 70/30 CUNI
  - Non Asbestos

### GENERAL

- **Price**: F.O.B. Batavia, NY
- **Shipment**: 200 - 1000 - 1
- **Remarks**: Drawing Per S-1093

---

**FINAL REDESIGNED SPEC SHEET**
To assist us in placing people in their proper position, please complete the following:
I have had experience in the following positions:

<table>
<thead>
<tr>
<th>Title of Position</th>
<th>Hours of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool &amp; Cutter Grinder</td>
<td></td>
</tr>
<tr>
<td>Tool &amp; Die Maker</td>
<td></td>
</tr>
<tr>
<td>Machine Shop &amp; Layout</td>
<td></td>
</tr>
<tr>
<td>Engine Lathe Operator</td>
<td></td>
</tr>
<tr>
<td>Turret Lathe Operator</td>
<td></td>
</tr>
<tr>
<td>H.C. Machine Operator Lathe</td>
<td></td>
</tr>
<tr>
<td>N.C. Machine Operator Drill</td>
<td></td>
</tr>
<tr>
<td>H.C. Machine Operator Mach. Center</td>
<td></td>
</tr>
<tr>
<td>Milling Machine Operator</td>
<td></td>
</tr>
<tr>
<td>Boring Mill Operator</td>
<td></td>
</tr>
<tr>
<td>Planner Mill Operator</td>
<td></td>
</tr>
<tr>
<td>Radial Drill Operator</td>
<td></td>
</tr>
<tr>
<td>Band/Crack Saw Operator</td>
<td></td>
</tr>
<tr>
<td>Blanchard Grinder</td>
<td></td>
</tr>
<tr>
<td>Machine Shop Utility Bench Worker</td>
<td></td>
</tr>
<tr>
<td>H.C. Programmer</td>
<td></td>
</tr>
<tr>
<td>Draftsman/Blueprint Reading</td>
<td></td>
</tr>
<tr>
<td>Department Expeditor</td>
<td></td>
</tr>
<tr>
<td>Job Dispatcher</td>
<td></td>
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<tr>
<td>Sandblaster</td>
<td></td>
</tr>
<tr>
<td>Painter</td>
<td></td>
</tr>
<tr>
<td>Carpenter/Finisher</td>
<td></td>
</tr>
<tr>
<td>Inspector (Physical Dimensions)</td>
<td></td>
</tr>
<tr>
<td>X-Ray Technician/nct Inspector</td>
<td></td>
</tr>
</tbody>
</table>

ORIGINAL JOB APPLICATION
It is obvious that the original job application was an awkward thing to read, fill out or retrieve information from. It also did not present a favorable image of Graham to potential employees. Each piece of paper was done in different type styles and sizes and it had been photocopied so many times that words and rules were blurry or missing. It consisted of two pages front and back and a third sheet that was added that contained the paragraph about the drug screening. That sheet had obviously been added almost as an afterthought. At first glance I knew it should all be condensed into two pages front and back, it would just be a matter of making better use of the space available.

Of all the pieces that comprise this thesis, this is the only one that could not be typeset in advance. There are so many tabs, text blocks, rules and screened boxes involved that it was necessary to handle it block by block and then page by page. Before starting to try to redesign the application it was necessary to study the original and decide how to group the information in the most logical way.

These are two of the early “thumbnails” from the initial trial and error stage.
The custom pattern used in the background uses up a great deal of disk space within the PageMaker file and slows down the computer considerably. Because of this I did not drop it in until the very end of working on this piece and instead used a plain gray screen for reference.

In addition, the pattern appears like this

```
CCCCCCCCCCCCC
CCCCCCCCCCCCC
CCCCCCCCCCCCC
CCCCCCCCCCCCC
CCCCCCCCCCCCC
```

on the computer screen but prints out as the postscript pattern to the printer. It was visually distracting to have it on the page during the design process so I would drop it in to print the pages and then delete it as soon as I had the hard copy.
Adding the logo, address and title on the front page were the last things added. It took some trial and error to get the background screen and the screens behind the type to coordinate well. Since you cannot see the postscript pattern on the computer screen it was necessary to print it out in order to see each minor value alteration in the pattern.
To assist us in placing people in their proper position, please complete the following if you have had any experience in the positions listed:

<table>
<thead>
<tr>
<th>Title of Position</th>
<th>Months of Experience</th>
<th>Title of Position</th>
<th>Months of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool &amp; Cutter Grinder</td>
<td></td>
<td>Warehouse Man</td>
<td></td>
</tr>
<tr>
<td>Tool &amp; Die Maker</td>
<td></td>
<td>Material Handler</td>
<td></td>
</tr>
<tr>
<td>Machine Shop &amp; Layout</td>
<td></td>
<td>Forklift Operator</td>
<td></td>
</tr>
<tr>
<td>Engine Lathe Operator</td>
<td></td>
<td>Truck Driver-Class 1 License</td>
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</tr>
<tr>
<td>Turret Lathe Operator</td>
<td></td>
<td>Truck Driver-Class 3 License</td>
<td></td>
</tr>
<tr>
<td>N.C. Machine Operator Drill</td>
<td></td>
<td>Weldor SMAW (Stick/Arc)</td>
<td></td>
</tr>
<tr>
<td>N.C. Mach. Operator Machine Center</td>
<td></td>
<td>Weldor GTAW (Tig/Meliana)</td>
<td></td>
</tr>
<tr>
<td>Milling Machine Operator</td>
<td></td>
<td>Weldor GMAW (Mig/Innershield)</td>
<td></td>
</tr>
<tr>
<td>Boring Mill Operator</td>
<td></td>
<td>Weldor SAW (Subarc)</td>
<td></td>
</tr>
<tr>
<td>Planner Mill Operator</td>
<td></td>
<td>Fix-Up/Set-Up Weld Shop</td>
<td></td>
</tr>
<tr>
<td>Radial Drill Operator</td>
<td></td>
<td>Layout, Plate and/or Sheet Metal</td>
<td></td>
</tr>
<tr>
<td>Band/Hack Saw Operator</td>
<td></td>
<td>Bernuer-Machine Gas Plasma</td>
<td></td>
</tr>
<tr>
<td>Blanchard Grinder</td>
<td></td>
<td>Hand Burner</td>
<td></td>
</tr>
<tr>
<td>Machine Shop</td>
<td></td>
<td>Cleaner/Grinder Weld Shop</td>
<td></td>
</tr>
<tr>
<td>Utility Bench Worker</td>
<td></td>
<td>Maintenance Electrician/ Electronics</td>
<td></td>
</tr>
<tr>
<td>N.C. Programmer</td>
<td></td>
<td>Maintenance Mechanic/ Millwright</td>
<td></td>
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<tr>
<td>Draftsman/Blueprint Reading</td>
<td></td>
<td>Maintenance Pipelitter/Plumber</td>
<td></td>
</tr>
<tr>
<td>Department Expediter</td>
<td></td>
<td>Maintenance Carpenter/ Cabinet Maker</td>
<td></td>
</tr>
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<td>Job Dispatcher</td>
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<tr>
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<td>Painter</td>
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<tr>
<td>Carpenter-Skid/Box</td>
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</tr>
<tr>
<td>Inspector (Physical Dimensions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X-Ray Technician/ Not Inspector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasket Cutter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stockroom Keeper</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FINAL REDESIGNED JOB APPLICATION — PAGE 2
Please account for all periods of employment, including periods of self-employment and unemployment. Give your last or present job first, then next position, etc.

<table>
<thead>
<tr>
<th>NAME OF COMPANY</th>
<th>DATES EMPLOYED</th>
</tr>
</thead>
<tbody>
<tr>
<td>STREET</td>
<td>CITY</td>
</tr>
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<td>PAY RATE (PER HOUR)</td>
<td>JOB TITLE</td>
</tr>
<tr>
<td>Start</td>
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</tr>
<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>REASON FOR LEAVING</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME OF COMPANY</th>
<th>DATES EMPLOYED</th>
</tr>
</thead>
<tbody>
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<td>CITY</td>
</tr>
<tr>
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<td>JOB TITLE</td>
</tr>
<tr>
<td>Start</td>
<td></td>
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<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>REASON FOR LEAVING</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
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</thead>
<tbody>
<tr>
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<td>CITY</td>
</tr>
<tr>
<td>PAY RATE (PER HOUR)</td>
<td>JOB TITLE</td>
</tr>
<tr>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>REASON FOR LEAVING</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<tr>
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<td>JOB TITLE</td>
</tr>
<tr>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>REASON FOR LEAVING</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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</tr>
</thead>
<tbody>
<tr>
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<td>CITY</td>
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<tr>
<td>PAY RATE (PER HOUR)</td>
<td>JOB TITLE</td>
</tr>
<tr>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>REASON FOR LEAVING</td>
<td></td>
</tr>
</tbody>
</table>
### MISCELLANEOUS

<table>
<thead>
<tr>
<th>ARE YOU PRESENTLY EMPLOYED?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part-Time</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Full-Time</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

| HAVE YOU EVER BEEN EMPLOYED BY GRAHAM MFG., INC? | YES | NO |

| MAY WE REFERENCE CHECK YOUR PRESENT EMPLOYER? | YES | NO |

| MAY WE REFERENCE CHECK YOUR PAST EMPLOYER? | YES | NO |

| ARE YOU WISHING TO WORK THE NIGHT SHIFT? | YES | NO |

| HAVE YOU EVER BEEN CONVICTED OF A FELONY? | YES | NO |

| IF YES, EXPLAIN BELOW: |

| ANY MILITARY SERVICE? | YES | NO |

| IF YES - BRANCH OF SERVICE |

| DATE OF DISCHARGE |
| BANK AT DISCHARGE |
| TYPE OF DISCHARGE |

### NOTICE

I understand that any false statements in this application shall be cause for summary rejection and/or dismissal from employment.

I understand that the entire contents of this application form and/or any accompanying statements and/or attachments may be used by the company should they be required. And I further give Graham Manufacturing Company permission to make inquiry to my former employers.

I understand that employment with Graham Manufacturing Company is at will and no contract of employment is created by this employment application, by an offer of employment, or by any other company document, or statement of a manager.

__________________________
Signature of applicant

(Date)

### Post-Offer/Pre-Employment Drug Screen Testing

All job applicants who receive a conditional offer of employment at Graham Manufacturing Company will be required to undergo a drug screen for the presence of illegal drugs or alcohol as a condition of employment. Refusal to consent to such screening will render the applicant ineligible for employment. Applicants who fail the drug test will be denied employment and will be ineligible for future employment for a period of six (6) months.

January 1, 1993

### OFFICE USE ONLY

<table>
<thead>
<tr>
<th>INTERVIEWED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
</tr>
</tbody>
</table>

| COMMENTS |

<table>
<thead>
<tr>
<th>STARTING DATE</th>
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<tr>
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</tr>
<tr>
<td>DATE</td>
</tr>
<tr>
<td>SHIFT</td>
</tr>
<tr>
<td>DEPARTMENT</td>
</tr>
</tbody>
</table>

| PAYROLL |
| EMPLOYEE NO. |
| APPROVED    |
| DATE        |
Total Quality Management Update (TQM)

December 17, 1992

TOTAL QUALITY MANAGEMENT *** UPDATE ***
Graham Manufacturing Co., Inc.

TQM TRAINING

The 24 hour training program discussed during the October TQM Presentation is progressing well. To date 59 people have completed this training. They are:

H. Johns
J. Ellis
J. Pleas
R. Boyd
B. O'Brien
L. Schad
R. Reiner
J. Mikolajczyk
R. Smith
J. Hart
K. Austin
S. Northrop
L. Cullin
D. Maas
L. Smith
A. Uliaza
D. Smith
D. Stone
T. Smith
J. Parker
P. Siebert
P. Corbel
D. Boyce
Jankovski
E. A. Miconi
Birgenheier
D. M. Wetzel
L. D. Smith
L. D. Spring
Marlin
Gerould
H. Austin
K. Smith
K. Pixley
N. B. O'Brien

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L. Smith
A. Uliaza
D. Smith
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P. Siebert
P. Corbel
D. Boyce
Jankovski
E. A. Miconi
Birgenheier
D. M. Wetzel
L. D. Smith
L. D. Spring
Marlin
Gerould
H. Austin
K. Smith
K. Pixley
N. B. O'Brien

They are:

K. Shepp
J. Ellis
J. Pleas
R. Boyd
B. O'Brien
L. Schad
R. Reiner
J. Mikolajczyk
R. Smith
J. Hart
K. Austin
S. Northrop
L. Cullin
D. Maas
L. Smith
A. Uliaza
D. Smith
D. Stone
T. Smith
J. Parker
P. Siebert
P. Corbel
D. Boyce
Jankovski
E. A. Miconi
Birgenheier
D. M. Wetzel
L. D. Smith
L. D. Spring
Marlin
Gerould
H. Austin
K. Smith
K. Pixley
N. B. O'Brien

We now have a total of 31 people trained in the TQM Process. This is approximately 25 percent of our total employment.

Original TQM Newsletter

J. P. Gorman
J. R. Lines
P. Marks
G. M. Parker
R. E. Richenburg
M. E. Runney
G. C. Schrader
C. A. White

The overall objective of this team is to reduce cycle time. However, to accomplish this, they must first chart existing routes and then set priorities for resolving the various cycle times. They will then lay out a plan and determine the need/makeup of sub teams to accomplish their task.

Revision Cycle Time Team

This team is our first employee initiated project team.

Revisions and changes to B/M's and drawings are inevitable and can create many problems. The time cycle to handle these appears to be excessive and this team will investigate and determine ways to reduce the processing time required between Drafting and the Purchasing Agent. The team members are:

Duane Clark
J. N. Fox
T. McDonald
Keith Shepp
Chris Stone

Beginning in January, we will start training members of the Carpenter/Sandblast Team and Plate Scrap Reduction Team.

External Customer Complaint Team

A criteria of the Malcolm Baldridge assessment is how external customer complaints are handled. In order to improve the handling of such complaints, we are forming the External Customer Complaint Team which consists of the following members:

D. Piole
C. Stone
J. Jensen
C. M. Winner
F. Yaksich
C. Pizgoy
G. Anderson
Y. Sillers

The objective of this team is to develop a system which ensures that all external customer complaints are captured and tracked so that analysis and subsequent improvements can be part of the regular cycle.

Update

Many departments have formed work teams to resolve internal problems. We would like everyone to know the results of these teams. Would the leader of each team make sure the TQC is advised of the final results so we can publish them in this newsletter.

Every work team that requires more than one meeting to resolve their problem should prepare minutes of these meetings on Form QQP-2. This is as described on page 6 of your Total Quality Strategy Handbook.

GQFT Corner

If a customer asks whether you can do something for him, the answer is always yes, providing the request is related to your business.

Our job is to take care of the customer so well that he keeps coming back to us for the rest of his life.

If you want to keep your business, give customers exactly what they ask for -- or even more -- without any hesitation. If you do anything less, you might as well offer them nothing, because you will have lost their good will.

Something to Think About

Successful folks don't just entertain thoughts -- they put them to work.

Happy Holidays to all members of the Graham Team.
Total Quality Management Update is a monthly in-house publication, the target audience being all Graham employees. A copy is sent to managers and a few copies are posted on bulletin boards throughout the company for the majority of the employees.

My thinking behind the new TQM format was that it was not being distributed properly. They wanted all the employees to read it but only gave it to the “important” ones. The rest of the employees, they assumed, were interested enough to go seek this newsletter out on one of several bulletin boards. Not a very realistic expectation, particularly since it is not even remotely appealing visually. The new format I came up with could be put in with the paychecks or put in holders and displayed at the front desk for anyone who would like one.

This new format would make the content seem more important simply by the way it was presented, particularly since this format was unique for this company, and set this newsletter apart from the others.

After deciding on a format, the next step was to arrange the information in more manageable “units” or modules. Their original version was a bunch of short items strung together in a run-on format, giving the pages the impression of time-consuming, continuous reading. By breaking the information down into more manageable blocks of type, the reader can scan more easily. While a modular design is more time-consuming to achieve — having to move items around more in order to achieve the desired effect — the results are more appealing and less intimidating to the reader.27

Before beginning work on the format, but after I had decided the format I would like it to take, I worked on some ideas for the cover or front panel.
I decided that the embossed version had the most potential and planned on returning to that theme, once the skeleton of the new TQM had taken form. The grid is about as simple as possible — one column per panel or three columns per side. The only problem concerning the grid was to allow space enough between columns for the fold.

At this point I tried out some different ideas as far as how to present the content visually. Did the headings work better reversed? How about a rule underneath the headings to separate them from the body copy? Should the rules top and bottom be darker with reversed type or lighter without reversed type? The following appear in the chronological order in which they were produced:
REVISION CYCLE TIME TEAM

This team is one of the employee-focused project teams. These teams' projects are inevitable and can create many problems. The team members handle these projects for the employees and the team will investigate and determine ways to reduce the processing time required between drafting and the finishing agent. The team members are:

Dave Clark - Keith Shane
Delilah Fox - Chris Snow
Todd McDonald

COST CORNER

Is it customer value whether you do something for him, the answer is always yes, providing the request is related to your business. Our job is to make sure the customer will see and feel that the positive change has been made. Is it a change we can publish to the world or even more - without any hesitation. Even by doing something, you might as well allow them nothing because you will have lost their good will.

SOMETHING TO THINK ABOUT

Successful folks don’t put negative thoughts – they put them to work.

Happy Holidays
to all members of the Graham Team.

TQM TRAINING

The TQL training program discussed during the October TQL meeting is progressing well. To date, 30 people have completed the training.

- S. Morgan, S. Edwards, T. Janson, T. Davis, J. White, A. Miller, A. Black, J. Jones, M. Thomas

EXTERNAL CUSTOMER COMPLAINT TEAM

A core is the Holden building environment to lower external customer complaints. To reduce complaint handling time, the team members have been assigned a variety of tasks.

- B. Fox, G. Hogeward, C. White, R. Jones
- J. Baker, J. Davis, J. Smith, J. Gordon, J. Brown, J. Johnson

ORDER PROCESSING OPTIMIZATION TEAM (OPOT)

The original objective of the team was to reduce order time. However, to accomplish this, they must first start saving cycle times and then we plan for reducing the overall cycle time. They will then have a plan and determine the need for additional work to accomplish this task.

Members of the team:

- J. Black, J. White, J. Jones
- J. Baker, J. Davis, J. Smith, J. Gordon, J. Brown, J. Johnson

The objective of the team is to reduce order time, which means that all existing customer complaints are captured and resolved so that analytical and subsequent improvements can be part of the regular cycle.
**REVIEW CYCLE TIME TEAM**

The Review Cycle Time team consists of members from different departments to address cycle time issues. The team's efforts have helped to reduce cycle times and improve overall efficiency. The team members are:

- Dennis Clark
- Keith Sharpe
- Chris Shreeves
- Teddie Alford

**WORK TEAMS**

Many departments have formed work teams to tackle internal problems. One such team is the Order Processing Team. The team aims to improve order processing times and reduce errors. The team members are:

- Karen Ricks
- Rick Ferrell
- Jack Thomas
- Linda Johnson
- Dooley Smith
- Joe Martin
- Steve Mullins
- Mike Davis
- Jane Smith

**EQUIP CORNER**

Equipping your workforce with the right tools and technologies is crucial for success. The Equip Corner provides resources and strategies to enhance workplace efficiency and productivity.

**TOTAL QUALITY MANAGEMENT UPDATE • DECEMBER 17, 1992**

**TQM TRAINING**

The TQM training program focuses on enhancing the team's understanding of quality principles. It is designed to improve communication and collaboration among team members. The training is led by experienced trainers from various departments.

**EXTERNAL CUSTOMER COMPLAINT TEAM**

An effective external customer complaint team is essential for maintaining customer satisfaction. The team is responsible for addressing customer complaints and ensuring timely resolution. The team members are:

- Tom Jones
- Susan White
- John Smith
- Linda Johnson

**ORDER PROCESSING OPTIMIZATION TEAM (OPOT)**

The OPOT team focuses on improving order processing efficiency. The team is composed of representatives from various departments, each bringing unique perspectives and expertise. The primary goal is to streamline processes and reduce order processing time.
I reached the point where I thought that the final one was the strongest while at the same time conforming to the other pieces I was working on. It was time to go back to the cover panel and make sure it would work with the rest of the design.
update

update

update
update

December 17, 1993

TOTAL

QUALITY

MANAGEMENT

update

graham

graham
There were many more versions of both the cover and the rest of the newsletter, many with just subtle alterations. Rather than include them all, I chose the ones which better represent the creative process and thought behind them.

Once the cover was decided on, I went back to the tedious job of going over everything with a fine tooth comb. It was at this point where kerning and tracking were done in the headings, the lines were adjusted until they lined up perfectly, and widows and orphans were adjusted. The hyphenation and line breaks were also adjusted for improved readability and to make it more visually appealing.

The bleed gives the page a feeling of expansiveness; unbound by margins it seems larger that it actually is. Since a laser printer cannot print to the very edge of a piece of paper, this effect was achieved by printing it out on legal size paper and then cutting off the excess.

---

**REVISION CYCLE TIME TEAM**

This team is our first employee initiated project team. Revisions and changes to W/1’s and drawings are inevitable and can create many problems. The time cycle to handle these appears to be excessive and this team will investigate and determine ways to reduce the processing time required between Drafting and the Purchasing Agent. The team members are:

- Duane Clark
- Debbie Fox
- Todd McDonald
- Keith Sharon
- Chris Stone

**WORK TEAMS**

Many departments have formed work teams to resolve internal problems. We would like everyone to know the results of these teams. Would the leader of each team make sure the TOC is advised of the final results so we can publish them later in this newsletter.

Every work team that requires more than one meeting to resolve their problem should prepare minutes of these meetings on form QOST-2. This is as described on page 9 of your Total Quality Strategy Handbook.

---

**QOST CORNER**

If a customer asks whether you can do something for him, the answer is always yes, providing the request is related to your business.

Our job is to take care of the customer so well that he keeps coming back to us for the rest of his life.

If you want to keep their business, give customers exactly what they ask for — or even more — without any hesitation. If you do anything less, you might as well offer them nothing, because you will lose their good will.

---

**SOMETHING TO THINK ABOUT...**

Successful folks don’t just entertain thoughts — they put them to work.

---

**HAPPY HOLIDAYS**

To all members of the Grahams Team.

---

**FINAL REDESIGNED TQM UPDATE — FRONT**
TOTAL QUALITY MANAGEMENT UPDATE

**TQM TRAINING**

The 24 hour training program discussed during the October TQM presentation is progressing well. To date 39 people have completed their training:

H. Johns  K. Sherman  D. Spring  
J. Ellis  P. Harris  K. Sullivan  
J. Pfeuty  R. Boyd  E. Jankowski  
R. O'Brien  L. Schneid  D. Boyce  
N. Kramer  J. Mikolajczyk  L. Cole  
R. Smith  J. Mon  J. Allazo  
K. Amin  S. Northrop  G. Parker  
L. Coling  D. Moore  P. Corbell  
L. Smith  A. DiPrezzo  P. Sabato  
D. Smith  D. Steves  J. Ellis  
T. Smith  P. Marks  P. Perkins  
L. W retzki  J. Concone  C. White  
M. Allison  E. Manville  T. Roman  
A. Dennis  J. Bridge  E. Clark  
R. Gerold  W. Kibler  M. Visal  
H. Kozowski  K. Dunweld  T. Ciletti  
D. Martin  C. Bruder  C. Yuskilock  
D. Biegelheiser  R. Holmen  J. Klein  
J. O'Dell  J. Lines  C. Zambito  
A. Miceli  D. Rude  

We now have a total of 81 people trained in the TQM Process. This is approximately 25 percent of our total employment.

Beginning in January, we will start training members of the Carpenter/Sandblast Team and Plate Scrap Reduction Team.

**ORDER PROCESSING OPTIMIZATION TEAM (OPOT)**

Reduced cycle time (time of order through time of shipment) is one area we must improve on to stay competitive. Since we have a variety of products, each must be handled separately. The OPOT has been reorganized and the members are:

G. S. Beckmann  B. L. Ether  J. R. Sherman  
J. F. Gorman  M. E. Burney  
J. K. Lines  G. C. Hennings  
P. Marks  J. A. White  
G. M. Parker  

The overall objective of this team is to reduce cycle time. However, to accomplish this, they must first chart existing routes and then set priorities for reaching the various cycle times. They will then layout a plan and determine the need/make-up of sub teams to accomplish their task.

**EXTERNAL CUSTOMER COMPLAINT TEAM**

A criteria of the Malcolm Baldrige assessment is how external customer complaints are handled. In order to improve Graham's handling of such complaints, we are forming the External Customer Complaint Team which consists of the following members:

- D. Tice  
- C. Probyza  
- C. Stee  
- N. Kahan  
- J. Jensen  
- G. Anderson  
- C. Matic  
- T. Zielke  
- F. Taraden  

The objective of this team is to develop a system which assures that all external customer complaints are captured and tracked so that analysis and subsequent improvements can be part of the regular cycle.

**FINAL REDESIGNED TQM UPDATE — BACK**
Sales World

Graham Sales World is a newsletter which is distributed to some employees and to 100 or so sales agents three times a year. This particular piece was an interesting challenge to me since I had designed the original for Graham several years ago on a free-lance basis. At that time I was not very happy with the final result. Although I did the work there really wasn't an opportunity for creativity since they dictated virtually the entire design. I would work up a series of comps and they would invariably choose the one I liked the least and which was the most boring and conservative. Following issues were produced by the printing company who would simply follow my original, making minor changes here and there as was convenient. After several years of these minor changes it barely resembled the original.

This is also the only piece in which the original used spot color so the other challenge was to try to produce a new version that would work in black and white without the benefit of color.

The major problems with their version were:
1) A very boring layout which made poor use of white space
2) The quality of the photos was very poor
3) It was expensive for them to produce, between $700-$1,000 for 400 copies, depending on how many photos were used
4) The times / helvetica combination was too bland
5) The color really didn’t help it all that much
6) It lacks unity with Graham’s other printed material

The first thing I did was eliminate “Graham” from the title, since I thought the flag would be stronger without it. Virtually every article contains the name at least once and the logotype is also right there on the front page, so having it in the flag seemed redundant.

Since I had typeset the copy already, the first step in designing the new Sales World was to experiment with possibilities for the flag.
ORIGINAL SALES WORLD NEWSLETTER PAGES 1 & 2

Graham Sales World
A Newsletter Published For Representatives Of Graham Manufacturing Co. Inc.

No. 10 - September 1992

SPECIAL DESIGN, SPECIAL SHIPMENT

Graham's recent vacuum container supplied an extracting machine application for the Louisiana Energy Company. In addition to the special support arrangement and gear tooth machining, the customer desired a 6000-lb. weight reduction. A design was made with lowered capacity storage integral with the vacuum shell which was designed. The resulting container was slightly 12 feet wide and over 32 feet tall. The shipping weight of this unit was over 115,000 lbs. These dimensions and weight reduced a challenging effort to obtain shipping clearance.

FLUE GAS DESULPHURIZATION - LRVP APPLICATION

With the advent of the EPA Clean Air Act and other regulations, the Power Utility Industry is being mandated to reduce 500 tons or more of sulfur emissions in the atmosphere. Flue Gas Desulphurization plants will require LRVPs. Federal law permits use of high sulfur levels in the atmosphere causing the acid rain impact on the environment.

Liquid Ring Vacuum Pumps are used to recover large vacuum filters to draw off the filter cake, which is a result of the total purification being removed by the wet limestone scrubber in the exhaust stack. Large stainless steel pumps in the range of 9000-12000 CFM are required for this application. A recent market study indicates that there is a significant opportunity for growth in this area.

The approach to this market is from four levels.

1. OEM/Original equipment manufacturers.
2. End users/consulting engineers.
3. Power utility company direct.

Adams Brothers is presently quoting three large SR pumps packages in 316 SS in Southern Energy Company. Service for the Mississippi Power Company, also a Pump division and, ABB VAX 2300 vacuum pumps design, will be used. As with all Power Utility market direct, close support and coordination with all parties concerned will be required. Please take a close look and your interest for opportunity and solution to your company. We may all benefit our own efforts.

— LARRY CULLING

SALES TRAINEES

Little Miss of Sample
Bro. St. Louis is one of two key sales representatives who is spending six months in training at Graham. The other is Brian Jackson of Phoenix ISU who began his training at Graham in April. We look at this program as being part of our partnership with our sales force and know it benefits all of us.

A CUSTOMER INSPECTOR'S VIEWPOINT

We would like to let you know how some of our customer's inspectors feel about Graham by sharing comments from them.

Our first featured Inspector is Mr. Joseph L. Kaczmarski, who has been inspecting Graham for 15 years, representing companies such as Exxon, Arco, Arco Chemical, and Dow Chemical. Below is his impression when asked a few questions concerning Graham.

1. What is your overall opinion of Graham?

   Graham has provided a quality product consistently, audited by many companies I have been associated with over the years. Graham's customer service has always been excellent. As a result, our business has always been 'to Graham Men'...

2. How is Graham compared to other companies?

   Graham provides products at a very competitive price. The company is highly rated by its customers and is a leader in the industry.

3. Other comments?

   We have always been impressed with Graham's Quality Department's knowledge of the products we have been associated with, namely incineration, and manufacturing agents. This is a great help, which makes our job easier.

— JOSEPH KACZMARSKI

KAPL CO.

Page 3 - Graham Sales World - September 1992
SAFETY SHOWERS - APPLICATION FOR MICRO MIX II

Graham purchased a Micro Mix II computer program in August of 1986. Since that time, we have been able to solve complex problems that, in the past, were impossible to address. The program is considered a significant advancement in the safety field.

In Japan, for example, the airline industry has been using the Micro Mix II program to address a variety of safety-related issues. The ability to perform detailed calculations and simulations using the program has not only helped to improve safety standards, but has also reduced costs by providing faster and more accurate results.

Although the Micro Mix II program has been very successful in Japan, it has also been adopted by other countries around the world. As more companies recognize the benefits of using this technology, we expect to see even greater adoption in the future.

—JOE GORDON

ORIGINAL SALES WORLD
NEWSLETTER PAGES 3 & 4

SAFETY SHOWERS - APPLICATION FOR MICRO MIX II

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—JOE GORDON

END MECHANICAL REFRIGERATION SYSTEMS

As seen in a previous issue, we have increased the capacity of our stainless steel (SS) units. The improvement has been made in response to customer demand for increased capacity. The improvement increases the total capacity and reduces the number of units required to meet the demand. This results in a more cost-effective solution for our customers.

—CHRIS PRESSY

ORDER ENTRY SYSTEM

We recently acquired the Order Entry System and are pleased to announce that it will be available for use in the near future. This system will be implemented in phases, with the initial phase scheduled for November 1st.

—JOE GORDON

SCHEDULE OF EXHIBITIONS

SEPTEMBER - DECEMBER

CHEMICAL PROCESSING TABLE TOP SHOWS
- October 14 - Minneapolis, MN
- November 10 - Houston, TX

AVC 1987 ENGINEERED HEATING EXHIBITS
- November 16 - Boston, MA
- November 18 - Chicago, IL

POWER GEN '95
- November 18 - Orlando, FL

This newsletter is for the use of Graham Manufacturing Co., Inc. and their representatives. Any references to customers’ data related to installations and process must be considered confidential and is a proprietary system.

Graham Sales World September 1986 - Page 3
The most obvious ideas were the use of dollar signs (for sales) or the globe (for world). That is why I chose to stay away from these. "Sales World" seemed cliché and average and the use of dollar signs or globes would just reinforce that. Although a wonderful graphic treatment cannot compensate for a dumb or mediocre name, it would be better than emphasizing it. I continued in the direction of a more graphic treatment of the flag.
At the same time I was working on a format and grid for the newsletter. My main goals were to come up with a more exciting layout and to make better use of the white space.
Although the photos and diagram had already been scanned, they took up an incredible amount of space since PageMaker saves that information within the document. Another option would have been to not save the scans within the document and link them every time you opened the file but even this method was much slower that the one I used. I drew representative drawings in SuperPaint in the same dimensions of the photos. This increased my working time since the paint files are very small and do not slow down the computer which the scans did. It also saved disk space and allowed me to save the multiple working copies as I went along.
After the grid was decided on it took a great deal of trial and error to achieve to desired effect. Page layout is not merely a matter of making the page pretty — it must reinforce the communication of the publication's content. In order to look convincing it must concentrate on the essentials and be designed on clear, functional lines.
It was almost complete at that point but I was still a little unsure of the flag. The last things that needed to be done were some fine tuning — tracking and kerning of the headings, making sure all of the lines of type were in alignment, adjusting the hyphenation and "removal" of widows and orphans. The latter two items are better left until the end otherwise it will have to be done repeatedly as the layout changes.

Since I was still not satisfied with the flag, I went back to trying to resolve it.
SALES World

SALES World

SALES World

SALES World

SALES World

SALES World

SALES World
SPECIAL DESIGN, SPECIAL SHIPMENT

Graham's most recent condenser supplied for an axial exhaust turbine application went to Delano, California this July. The unit will condense steam exhausted from an ABB VAX LT-17 turbine at the Delano Biomass Energy Company plant.

In addition to the special support arrangement and steam inlet machining tolerances of all units for VAX turbines, the customer desired to eliminate field-welding. A design with toroidal storage capacity integrated with the condenser shell was designed. The resulting condenser was nearly 13 feet wide and over 12 1/2 feet tall. The shipping weight of the unit was over 115,000 lbs. These dimensions and weight resulted in a challenging effort to obtain shipping clearance.

Initially, clearance to ship by rail was sought. Due to the over width dimensions, the use of a "Special Train" for a portion of the transit was required. Special trains travel at reduced speed and the per mile charge is much higher than normal. The rail quote for freight exceeded $50,000. Alternative clearance by special truck was then pursued and obtained. The shipment was made by a 12 axle-three section dolly system truck, resulting in a savings in freight costs for the customer of approximately $30,000.

This application illustrates Graham's ability to adapt to special requirements in design, manufacturing, and shipping procedures to satisfy customer requirements.

— Larry Culling

FLUE GAS DESULPHURIZATION

With the advent of the EPA Clean Air Act and other regulations, the Power Utility Industry is being mandated to reduce SO2 emissions to the atmosphere. Flue Gas Desulphurization (FGD) projects will require LRVPs. Fossil fuel plants emit high sulphur levels to the atmosphere causing the acid rain impact on the environment.

Liquid Ring Vacuum Pumps are used in conjunction with large vacuum filters to devatiate the filter cake, which is a result of the solid particulates being removed by the wet limestone scrubber in the exhaust stack. Large stainless steel pumps in the range of 1,000-4,000 CFM are required for this application. A recent market study indicates that there is a significant opportunity for growth in this area.

The approach to this market is three fold:

1. OEM Filter manufacturers
2. Consulting engineers
3. Power utility companies direct

Adams Brothers is presently quoting three large size 9 pump packages to 216 SS to Southern Company Services, Inc. for Mississippi Power Company, Daniel Plant, Units 1 & 2. As with all Power Utility market quotes, close support and coordination with all parties concerned will be required. Please take a close look around your territory for opportunities and advise us in Batavia, and other Graham sales representatives, so we may all optimize our sales efforts.

— Dave Birgenheier
HELFLOW VENT CONDENSER DISPLAY

In June, DuPont/Chambers Works Plant site conducted an "in-house" table top show specifically for their 3,200 plant employees. The theme was "Reducing Leaks and Fugitive Emissions" and consisted of a variety of equipment manufacturers exhibiting and discussing equipment relating to this topic.

Kahl Co. was invited to participate with appropriate equipment and we decided the Helflow Vent Condenser would be a good choice.

Batavia produced a Model 854C-12 VCCN Helflow assembly, complete with a flanged mounting stand which could be placed on the table top for exhibit. We received very favorable responses from the various DuPont employees.

This was a first for DuPont and attendance included various engineers, mechanics, maintenance, and clerical plant personnel. We discovered there was a lot of interest in the Vent Condenser and even those who used Helflows for years were intrigued by the thought of using it as a Vent Condenser and immediately began discussing several known applications where they could use the equipment. Being able to actually see the unit made it much easier for them to receive it favorably.

We are currently working on several applications and proposals, and expect more in the future because of this show. We appreciate the help we received from Graham in preparing this Condenser.

— Kevin Maggs, Kahl Co.

AN INSPECTOR'S VIEWPOINT

We would like to let you know how some of our customer's inspectors feel about Graham by sharing comments from them.

Our first featured inspector is Mr. Joseph LaRotta, Jr. Joe has been inspecting at Graham for 18 years, representing companies such as Exxon, Aramco, Dow Chemical and Tennant. Below is his response when asked a few questions concerning Graham:

Q: What is your overall opinion of Graham?
A: Graham provides a quality product worldwide, evidenced by the many projects I have been involved with over the years. Repeat business has allowed Graham to grow and become financially successful.

Q: How is Graham compared to other companies?
A: I would say above average. Graham has very good documentation control. Several layers of inspection prior to customer inspection, resulting in a high acceptance level.

Q: What are your other comments?
A: I have always been impressed with Graham's Quality Department's knowledge of the projects I have been involved with, namely, engineering and manufacturing aspects. This is a great help, which makes my job easier.

ORDER ENTRY SYSTEM

We recently analyzed the data that we are obtaining in our Order Entry System and would like to thank our sales force for the attention being given in providing us the sales and marketing data on our customers. We are receiving approximately 95% completion on all purchase orders entered. We urge you to pay close attention to this process, as we believe the information we gather will pay dividends for all of us in the coming years.

We do have some problems in the way the data is being entered, which will be addressed in the near future.

— Joe Gorman

"We are working on several applications and proposals, and expect more in the future because of this show."
SALES TRAINEES

Mike Haar of Sample Bros. St. Louis is one of two of our sales representatives who is spending six months in training at Graham.

The other is Brian Jackson of Process Innovations who began his training at Graham in August.

We look at this program as being part of our partnership with our sales force and know it benefits all of us.

SAFETY SHOWERS: APPLICATION FOR MICRO MIX II

OSHA regulations require the installation of safety wash stations as close to a hazardous area as possible. Some outdoor installations, along with certain chemicals, require the water to be heated. It is important that water be instantly available and heated to the required temperature.

The Micro Mix II is the perfect choice for such applications. The “feed forward” control provides instant unlimited, accurate delivery of heated water. The compact size allows for installation close to the point of use. For systems requiring different station temperatures, 3-way thermostatic mixing valves are utilized.

If the facility you call on has steam available, present the benefits of a Micro Mix II water heater for their safety wash system.

— Bob Hohman

ENVIRONMENTALLY SAFE SVR PROVIDES ALTERNATIVE

(To conventional CFC Based Mechanical Refrigeration Systems)

As mentioned in a previous issue, we have witnessed increasing activity in Steam Vacuum Refrigeration (SVR) quotations. Several firm quotes were provided this year to traditional SVR customers (pulp and paper mills expanding their existing chilled water capacity.) Fry equipment, our agent in Colorado, however, has seen an enormous increase in this interest, which is fueled by the Colorado Air Quality Control Commission’s proposed regulation, “The Control of Chlorofluorocarbon (CFC) Emissions.” This limits the use of mechanical CFC based refrigeration systems due to environmental concerns surrounding their impact on the ozone layer. SVR offers the advantage of requiring no ozone depleting chemicals. In addition, SVR offers the following advantages over mechanical systems:

1. Trouble-free, highly reliable operation with low maintenance requirements.

2. Flexible operation, meeting a wide range of operating requirements with a single unit design.

3. Ability to utilize low pressure steam, with no need for electrical power.

Although SVR has traditionally not been cost competitive with CFC based mechanical chillers, it appears to be much more competitive with steam absorption chillers, which also eliminate CFC’s. We are currently quoting a surface type SVR unit for a 45 MW combined cycle cogeneration facility which requires chilled water for cooling combustion gas tubing inlet air. The original inquiry specified steam absorption chillers, but after reviewing our budgetary proposal, the customer has requested firm pricing for our SVR system.

Look for SVR applications in your area!

— Chris Frybycz

FINAL REDESIGNED SALES WORLD NEWSLETTER — PAGE 3
"Since that time, we have been able to solve complex problems that, in the past, were impossible to address."

FINITE ELEMENT PROGRAM

Graham purchased a Finite Element Program in August of 1989. Since that time, we have been able to solve complex problems that, in the past, were impossible to address.

Finite Element Analysis (FEA) is primarily used when traditional methods cannot provide sufficiently accurate results. This is done by breaking a particular geometry into much smaller pieces, which make up a finite element model. When forces are applied to the model, the computer program calculates the deflections for each piece of the model. With strain being proportional to the first derivative of the displacement and stress being proportional to strain, the program is able to determine the stresses for each piece of the model.

Graham has found many new uses for FEA in the short time this powerful tool has been available. Following are a few examples of how the Finite Element Model is being applied:

- design of waterbox covers
- design of frames for vacuum pump and ejector packages
- calculating the maximum forces and moments on nozzles
- design of lifting lugs
- design of rectangular steam inlets
- calculation of tube sheet thickness
- design of bathtub hotwells
- design of saddle supports

As demonstrated above, the Finite Element Method is being used to perform calculations that previously were contracted to outside interests, thus, allowing us to process contracts faster and at a lower cost.

— Alan Smith

EXHIBITIONS
September - December

- Chemical Processing Table-Top Show
  October 14 - Midland, MI
  November 10 - Houston TX

- APE’s 1992 Engineered Plumbing Expo
  November 16-18 - Washington, D.C.

- Power Gen ’92
  November 17-19 - Orlando, FL

GRAHAM CONDENSERS IN JAPAN

Recently we shipped this condenser (one of three) which will be installed in a plant in Japan for Maruzen Petrochemical.

This newsletter is strictly for the use of Graham Manufacturing Co., Inc. and their representatives. Any reference to customers’ data related to installations and process must be considered confidential and of a proprietary nature.
Spiral Plate Manual

GRAHAM

VACUUM AND HEAT TRANSFER

SPIRAL PLATE HEAT EXCHANGERS

OPERATION, MAINTENANCE AND INSTALLATION MANUAL

GRAHAM MANUFACTURING CO., INC.
20 FLORENCE AVE.
BATAVIA, NEW YORK 14020

ORIGINAL PAGES FROM SPIRAL PLATE MANUAL

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   2.2 SXV Cross Flow/Spiral Flow
   2.3 SCV Combination Cross and Spiral Flow
   2.4 SCF Flange Mounted Heat Exchanger
   2.5 Other Configurations

SECTION 3 - INSTALLATION
   3.1 Initial Inspection
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   3.4 Piping and Controls

SECTION 4 - OPERATION
   4.1 Start-up
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1.0 Introduction

Spiral Plate Heat Exchangers are close to the ideal for heat transfer. Basically, each unit is an assembly of two long strips of plate wrapped to form a pair of concentric spiral passages. Most often, alternate edges are welded closed to form the two spiral passages. Under certain conditions, one passage can be welded closed at both edges while the other passage is open at both edges. Covers with full face gaskets are fitted to each side of the spiral assembly to complete the unit. See Figures 1, 2 and 3.

The single passage for each side eliminates channeling or "dead spots", and minimizes fouling. Hot fluid enters at the center and flows through the spiral passage to exit at the periphery. Cold fluid enters at the periphery and flows through the other spiral passage to leave at the center.

Typical construction employs spacer studs to establish and maintain the proper dimensions for each passage. Welded edge closures utilize a spacer/closing bar as indicated below in Figures 4 and 5.

It should be noted that spiral plate heat exchangers are sometimes furnished without spacer studs when special applications so require.

2.4 SCF Flange Mounted Heat Exchanger

A flange mounted spiral plate heat exchanger can be incorporated directly into the structure of process equipment as a bottom heater or as a condenser.

The service fluid flows inside the closed spiral channel. Process fluid can enter the unit as liquid or vapor from above or below the coil and can be directed into spiral, cross, or combination flow depending on the volumetric flow rate and desired temperature profile. Some SCF spiral plate heat exchangers use one channel welded closed. These can be cleaned only by circulating steam of a cleaning solution through the closed channel.

2.5 Other Configurations

The four designs illustrated here represent the vast majority of applications for this equipment, though other configurations are possible. One should remember that all designs involve the use of the basic spiral element, with various flow arrangements created by headers, distribution chambers, baffling and manifolds. By referring to the drawings furnished against your order, construction features and flow arrangements can be determined.

3.1 Initial Inspection

Inspect for shipping damage to the unit. If protective nozzle covers are damaged, look for internal contamination. If unit is contaminated, follow the cleaning procedure (Paragraph 5.2) and replace protective nozzles. If unit is damaged structurally, notify the carrier immediately, and then contact Graham Manufacturing Co., Inc.

Verify that the operating pressure and temperature of the unit do not exceed the design limits indicated on the unit nameplate.
The Spiral Plate Manual is one of many manuals that Graham produces but they all have a similar format. They are all written in very general terms since every piece of equipment is custom built. This particular piece of equipment will cost the customer between $5,000 and $100,000. This manual can be used for a minimum of ten years and between ten and twenty will be sent to customers over the course of a year. Over the course of ten years they will need at least 250.

As a product becomes more expensive, so should the way it is promoted. If a person is paying a great deal for a quality product, the same degree of quality is expected in the accompanying printed material. And yet Graham felt no need to improve the quality of these manuals. Aside from the poor format, the pages were not photocopies straight, the illustrations are not straight and have hand printed figure numbers written in below them, and there very obvious lines where the shadows from the pasted-in illustrations were photocopied. When I asked one of the people responsible for this manual why it looks like it does, their response was that it serves its purpose and only “grease monkeys” use it anyway.

The other major problems with this manual are:
1) The Graham logo type is not on it anywhere
2) A couple of words were spelled incorrectly
3) It does not evoke a feeling of a quality product
4) It looks unprofessional and reflects poorly on Graham
5) It uses paper inefficiently
6) It is difficult to read and to find information in it
7) The table of contents refers the reader to page numbers but there are none and some of the diagrams are missing figure numbers which the reader is referred to
8) There is no visual hierarchy except for the occasional use of all caps; all type is the same size
9) The format is cumbersome and does not open flat

The first consideration was that I wanted it take a booklet format and therefore the pages would have to be a multiple of four if there were to be no blank pages. Since all of the sections (2.1, 2.2, 2.3...) also had page numbers, it was confusing and redundant to have both. I decided to keep the main sections (1, 2, 3...) and get rid of the subsections, using just page numbers in order to index items.
After some experimenting, a simple three column grid seemed like it would be the most logical choice. Before deciding I placed all of the diagrams in both one and two column sizes and printed them to make sure they would reproduce well in this format.

<table>
<thead>
<tr>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Chapter and side exchanges. When the unit is running normally, the vapors are collected and cooled in condensers and the condensate is recycled or disposed of. When the unit is shut down, the condensate is disposed of by returning the condensate to the regenerant supply. FIGURE 6 A simple device for handling such condensate is a plate and frame heat exchanger. This device is used for heat recovery from condensate from the regenerant supply. FIGURE 7 Compressors and other items forming the heat exchanger.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 4 Components of a three column grid: condenser, condensate separator, and condensate tank. The condensate separator is the device that separates the condensate from the water. The water is then drained from the condensate separator and is returned to the condensate tank.</td>
<td>FIGURE 6 A simple device for handling such condensate is a plate and frame heat exchanger. This device is used for heat recovery from condensate from the regenerant supply. FIGURE 7 Compressors and other items forming the heat exchanger.</td>
</tr>
</tbody>
</table>
Since the copy constantly referred to figure numbers, a logical solution in order to make them easier to locate was to make the figure numbers reverse, kind of like flags. I tried the same with the “See figure 00” notes at the end of sentences or paragraphs.

I liked the thought behind it but the reverse was distracting. I also did not want them competing with the reverse “Caution Boxes” which appear later in the manual. It was also obvious that this treatment of the chapter headings was not going to work, either. The combination of the rule at the top and then the reversed box was too busy and did not work aesthetically.

I did like the idea of moving the figure numbers around. Since the diagrams are a variety of shapes, it was difficult to consistently arrange the figure numbers in the same position relative to the diagrams (i.e.: lower right hand corners). Changing their position was more convenient from a layout standpoint because I could make use of the dead space around each individual diagram. I also preferred it because it produced a more dynamic effect.
The squares, however, did not effectively direct the reader to the correct figure so I then changed the squares to triangles which act as arrows and started experimenting with different screen values that were not as overwhelming as the reversed ones. The other problem to be addressed at this point was how to handle the chapter headings. The folios were also reduced in size since they were too large.

Spiral Plate Heat Exchangers are close to the ideal for heat transfer. Basically, each unit is an assembly of two long strips of plate wrapped to form a pair of concentric spiral passages. Most often, alternate edges are welded closed to form the two spiral passages. Under certain conditions, one passage can be welded closed at both edges while the other passage is open at both edges. Covers with full face gaskets are fitted to each side of the spiral assembly to complete the unit.

Typical construction employs spacer studs to establish and maintain the proper dimensions for each passage. Welded edge closures utilize a spacer/dosing bar. SEE FIGURES 4 AND 5.

It should be noted that spiral plate heat exchangers are sometimes furnished without spacer studs when special applications so require.
Spiral Plate Heat Exchangers are close to the ideal for heat transfer. Basically, each unit is an assembly of two long strips of plate wrapped to form a pair of concentric spiral passages. Most often, alternate edges are welded closed to form the two spiral passages. Under certain conditions, one passage can be welded closed at both edges while the other passage is open at both edges. Covers with full face gaskets are fitted to each side of the spiral assembly to complete the unit. SEE FIGURES 1, 2 AND 3.

The single passage for each side eliminates channeling or "dead spots," and minimizes fouling. Hot fluid enters at the center and flows through the spiral passage to exit at the periphery. Cold fluid enters at the periphery and flows through the other spiral passage to leave at the center. Typical construction employs spacer studs to establish and maintain the proper dimensions for each passage. Welded edge closures utilize a spacer/sizing bar. SEE FIGURES 4 AND 5.

It should be noted that spiral plate heat exchangers are sometimes furnished without spacer studs when special applications so require.

PAGES 3 & 4 FROM THE FINAL REDESIGNED MANUAL

Once the format was decided on, it was a tedious process of going through all of the pages and methodically changing them to conform to that format. The most minor change such as inserting a word or even letter will change the line length and sometimes result in an additional line of text and vice versa, affecting all of the following pages. Thus, it was necessary to start from the beginning of the manual and work page by page to the end. It was necessary to go through this process a number of times before reaching the final version.

The cover of the manual was in process at the same time as the rest of it was. I scoured the diagrams in the manual looking for one with some kind of aesthetic appeal. Since none of them fit that description, I began looking at just portions of them for the same purpose. The abstract graphic which appears on the cover developed from the last diagram in the manual. I imported it into FreeHand and used it as a template to redraw the one section which I thought would make an interesting yet simple graphic for the cover.

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The following examples are a sampling of the many “thumbnails” created in developing the cover. They appear in chronological order and illustrate the trial and error process I went through in arriving at the final solution.
Spiral Plate Heat Exchangers
Operation, Maintenance, and Installation Manual

Spiral Plate Heat Exchangers
Operation, Maintenance, and Installation Manual

Vacuum and Heat Transfer
Graham Manufacturing Co., Inc. • 20 Florence Avenue • Batavia, New York 14020
PART IV — RESULTS

As a whole, the five pieces which I redesigned were a dramatic improvement over the originals. They work well as a unit and also individually. They are not examples of graphic design or corporate design on the cutting edge but that was not my intention nor the goal of this project. Each is appropriate for its intended use, means of production and for the company for which they were intended. I think I was successful in finding that compromise between “conservative” and “new and different.” The other goals previously mentioned were:

1) Innovative
2) Professional
3) Fair Prices
4) Stand Out
5) Get An Edge On The Competition

I think it is safe to say that all of the pieces created reflect these criteria in a successful manner.

Spec Sheet

The final version of the spec sheet illustrates how even the most mundane and boring of printed materials can be improved without much effort at all. It successfully resolves the three main goals for a form; it is easy to read, easy to complete, and easy to retrieve information from. By the simple use of screens and rules, it is much more successful as a form than the original, making it easier for the user.

I did find, however, that Futura is not the most ideal typeface to use in a form such as this since it has extremely long descenders and ascenders on the lower case letters. Leading had to be increased to compensate for this since the letters were overlapping the rules. If you look closely you can see them touching in the rules in spots, even with the additional leading.

Application

Since the application and the spec sheet are both forms, the visual appearance and format reflects that. While they are not exactly alike, they are similar enough that they would be instantly recognized as forms rather than a memo or newsletter, etc. If this was a genuine corporate identity overhaul for this company, this could be realistic solution: All the forms are reversed on top with the same treatment of the logotype. Forms and only forms would have this characteristic feature.
The application is also a improvement over the original. All of the criteria which make up a successful form have been addressed; it easy to read, easy to complete and easy to retrieve information from.

The other problems and weaknesses in the original that I wished to rectify were all addressed:
1) The new format is not awkward
2) It presents a more favorable image of Graham
3) Quality is greatly improved
4) It is more organized and uses less paper

The one major drawback to using PageMaker for such an involved form as this one is that it does not allow the user to group or lock items. You have to select each item individually in order to move them or bring them to front or send them to back. Since the type, rules and screened boxes are layered on top on one another, an inordinate amount of time was spent adjusting and readjusting each of these layers.

I knew that was the case before I started redesigning the application but I misjudged just how arduous a process it was going to be. I had briefly considered using Quark Xpress for this piece since you can group graphics and text in this program. I decided against it mostly because I do not know that program nearly as thoroughly as I know PageMaker. In retrospect, however, I think the advantage of being able to group graphics and text would have more than made up for my inexperience with the program.

**Total Quality Management Update (TQM)**
The new design of Total Quality Management Update encompassed all of the improvements I had determined as my goals:

1) It is more accessible to the employees
2) It looked like a quality product itself
3) It uses less paper
4) It is much improved visually
5) The copy is much easier to read without the justified type and rivers of white space
6) The format sets it apart from all of the other office memos
I went over to Graham one day when this thesis was near the end of its completion and spoke to the president of the company. I'll call him Mr. C. I asked Mr. C. to pretend that these were pieces that he had hired me to redesign and he was to tell me exactly what he thought. I was almost positive that the new Total Quality Management that I had worked up was the one piece he would really like. It turned out to be the only piece he really Disliked.

It was a very memorable meeting and it gave me a whole new — if not somewhat bizarre view of how upper management thinks. Although it was not what I expected to hear or what I wanted to hear at that point, it gave me some valuable insight that I had never found in all the books I consulted on corporate graphic design. The conversation on the subject of the TQM newsletter went something like this:

Mr. C.: "I don't like the new format because we post these and you could not hang this up easily... we use this format (trifold) for our medical plan information.”
Me: “But don't you want all the employees to read this?”
Mr. C.: “Yes, but they don't read the whole thing, they skim through it.
Me: “Don't you think that reading something on a wall is a little inconvenient?”
Mr. C.: “Maybe, but they just read the parts that interest them anyway.”
Me: “OK... forget about the format, what do you think of the way it looks?”
Mr. C: “It looks good and that is not what we want to convey here.”
Me: “But don't you think that a newsletter about quality should look like a quality product itself?”
Mr. C.: “We don't want to spend any more money on it.”
Me: “But you could produce one like I did almost as cheaply, the only additional cost would be the additional paper.”
Mr. C: “No, we don't want it to look professional. We want it to look like it was produced in-house.”
Me: “But you could produce something like the one I did very easily in-house.”
Mr. C.: “But it would look like we spent a great deal of money on it.”
Me: “I don't get it.”
Mr. C.: “The employees are always looking for ways to criticize how the company is spending money, especially now with the cutbacks.”
Me: “But don't you think that the employees would appreciate the fact that it looks like you're spending money on them by improving their newsletter?”
Mr. C: “No.”
Sales World

One of the biggest surprises I found was that the quality of the scanned images in the redesigned version of Sales World were an improvement over the original, despite the coarser dot pattern of my 600 DPI printer. I chose not to spend too much time on scanning since that in itself would be a long and involved project. I could have, no doubt, gotten even better results if I had the time to alter the scans and experiment with the screen used in printing them.

One of the most difficult things for me is getting blocks of different size type to line up correctly. I am embarrassed to admit that it was not until researching this thesis that I discovered it is a matter of simple math. For example, two lines of 6 pt. type set close will be the same depth as one line of 10 pt. type with 2 points of leading. This knowledge was especially useful in working on the newsletter because there are a greater variety of type sizes used.

My biggest complaint is with the flag, which I think could have been stronger. While it is a more dynamic graphic treatment and an improvement over the original, I never managed to find what I considered the ideal solution.

As a whole, the newsletter is a much nicer looking and more functional one. The format is more modular than the original and less intimidating to the reader. It is new and different while still being conservative and professional — qualities they considered important. Its lack of color has not lessened its impact. The only additions I made were the pull quotes and the index on the front page, which gives busy readers a preview and hopefully gets them to look further.

I especially like the use of pull quotes which act as additional points of entry for the reader, attracting him or her to an especially interesting point. The use of white space also makes the copy that is there seem more important. Once again there is that "granite" pattern which provides a unifying element with the other pieces which were redesigned, along with the same Futura and Rockwell typefaces which were used throughout.

While I think the new version of Sales World is a big improvement over the original, Mr. C. disagreed with me. He insisted that the existing Sales World is "One of the best looking in the business." His other argument was that it had to have color, they sometimes include charts and diagrams that they could not represent without color. While my feeling is that if used properly, screens could do the job just as well as color, he still disagreed and insisted they could not produce it without a second color.
Ironically, though, this was the last issue of “Sales World.” It has been discontinued indefinitely because of budget cut-backs. If it was produced in-house, as my proposed version could be at a fraction of the cost, it most likely wouldn’t be affected by such a cut-back. It would seem that a newsletter such as this should not be an on-again, off-again thing if it is to be taken seriously. If it is not affordable perhaps they should not have started it in the first place. By discontinuing this newsletter temporarily they seem to be saying that it isn’t worth the money. It also demonstrates in a very obvious manner that business is so bad that they can’t afford a $700 newsletter. How people perceive the disappearance of this newsletter certainly won’t be in a positive light.

**Spiral Plate Manual**

Mr. C.’s comments on my new version of the manual were all positive. He liked the format very much since it looks much better than the old one and is easy to understand. He liked the typefaces since they are clean, clear, and easy to read. He also liked the overall appearance since the former version was very outdated.

Personally, I agree with Mr. C. Since the original manual is so bad, it would not have taken much to improve it dramatically. All of the major problems with the original were addressed and resolved satisfactorily. The format is more appropriate for its intended purpose – reference. It is designed for random access as opposed to continuous reading.

The only questionable factor is that the pages all bleed and that would not be the most practical way to produce this manual. Since neither a laserprinter or copier usually print from edge to edge, I had to print the pages to larger size paper to get the bleed effect. My reasoning was that in order to produce a number of copies, the master could be done in-house and they could be reproduced inexpensively on a copier and the edges then trimmed. The other, and more practical, option would be not to bleed the rules off the edge. It would be very simple to do this by simply changing the rules once on the master page. The cover would have to be altered slightly also. Although I much prefer the bleed effect, I do not think the manual would suffer tremendously without it.
Concluding Remarks

I remember the first time I ever saw a Macintosh back in 1986. I thought it was the strangest computer I had ever seen. I never imagined then just how much that little machine would revolutionize the graphic design industry or what a profound effect it would have on me personally.

The most difficult thing for me throughout this project was having to work on an SE, an antique as far as Macintoshes go. The SE has only the minimum configuration to run the programs I used, not to mention the slowness of the 68000 microprocessor. Needless to say, it was very slow going. On one hand I think I would have been more productive and the end result would have been better had I used a faster, more capable Macintosh (which I could not afford.) On the other hand, the SE was a very realistic handicap since financial limitations are an unfortunate reality in the business world, as I have discovered with every job I have had that involves Macintoshes.

What used to be the domain of the graphic designer is now in the hands of anyone with a computer and printer. However, there is no substitute for experience and training and so it is doubtful that graphic designers will become extinct. The role of the graphic designer has changed and will continue to change as a result of technology and, in particular, the Macintosh. It is up to the designers to determine their role in this new age and to adapt to this new technology in order to create new forms and ways of expressing ideas.
Notes


6Rosen, p. 2.

7Meggs, A History of Graphic Design p. 471.


16Collier, p. 28.

17Meggs, Type & Image p. 17.


22Collier, p. 34.

23Collier, p. 7.


26Shushan, p. 196.


28Gosney, p. 46.

29Collier, p. 28.

30Beaumont, p. 68.
Selected Bibliography


