

Writing an Owner's Manual for a House

Shouldn't the largest investment most people ever make come with a big, thick instruction book?

by John Abrams

Remember when you had a flat tire in your '55 Chevy Bel Air? You pulled out the bumper jack and the tire iron, hauled the spare out of the trunk and changed the flat. But today when you get a flat tire in your new Toyota Camry, you may not even know where the spare is. Or the jack. Or how to operate it. So you get out the owner's manual, which is 100-plus pages long and filled with information about the car—how to operate it, how and when to maintain it, who to call with problems, even what kind of light bulb goes in the dome light.

But what about your house? It cost ten times more than your car, is far more complex and lasts a lot longer. Where's the owner's manual for your house? Wouldn't it be nice to have all the operating instructions and maintenance suggestions for your house assembled in one place? Wouldn't you like to have a record of where all the pipes and wiring run inside every wall?

South Mountain Company, where I work, has developed two documents that provide this information: an owner's manual and what we call a "roughing book," or album of numbered photographs showing all points of the house after rough framing is complete and after mechanicals, plumbing and wiring are in. We prepare both books for each house we build and for each major renovation, and we leave them with homeowners (photo right). The books become an essential part of the real estate, add to its value and prove indispensable to homeowners.

We made our first roughing book in 1984, and it began a long train of thought that continues to this day. We began to think about what happens to our houses after they're built—how they're

lived in, how they're maintained and how they're changed or added to. Like any conscientious designer/builders, we look for ways to make our houses more durable, to unravel their mysteries for the benefit of their owners and occupants, to document what goes into them to make them easier to alter and to create feedback loops so that our buildings continuously inform our practice.

A roughing book gives you X-ray vision—

The roughing book helps the owners to locate pipes, wires, blocking and other building elements hidden behind walls and ceilings. It helps to make repairs easier. It eases alterations and additions to the building. It even makes hanging a picture on the wall easier.

Our subcontractors have come to rely on the book as well. Not long ago, a former client returned home on a Sunday night and heard water dripping in the cellar, coming from a wall above. The plumber came right away, walked in, took a quick look and said, "Where's the book?" They dug out the roughing book; the plumber found the photo he was looking for and saw where there was a joint in the piping. He made a neat incision in the drywall, went right to the leak and soldered it. No mess, no destructive search-and-destroy mission. The clients were thrilled and impressed.

When the roughing book really begins to shine is years later, when it's time to add a room, move a wall, make a built-in. The roughing book gives us perfect memory and X-ray vision. It takes away all the guesswork. Because we've been using roughing books for only 10 years, my intu-



ition is that we haven't yet discovered their true value. We'll see what happens with them 25 years from now.

Assembling a roughing book—A roughing book usually consists of 60 to 200 photos—depending on the size of the house—plus the floor



plans, on which each photo is noted. It costs about \$100 in film and processing and requires four hours to six hours to make.

Photos for the roughing book get taken just before insulation is installed. At that point, we clean up and take a systematic photographic tour of the house.

It's a two-person job. One person photographs, and the other follows with a set of floor plans on a large clipboard. As each photograph is shot, the photographer calls out a number, and the scribe places an arrow and number on the plan that corresponds to the wall being photographed (top photo, p. 76). For ceiling shots,

When the builders move out at the end of a project, the owner's manual and roughing book (a detailed collection of construction photos) stay behind to help with maintenance, troubleshooting and future construction. Here, John Abrams (left) hands over the books to homeowners Sarah and Dennis Thulin.

the number is placed within a small circle at the location where the photograph was taken. We use a simple point-and-shoot camera with a wide-angle lens and automatic flash, and we load it with 200 ASA color-print film.

When the photos come back, they generally are in the order they were shot. At that point each photo is checked against the plan, numbered and placed in a photo album in numerical order. We make a pocket in the inside cover of the album for the plans.

Lately, we've begun photographing everything buried on the site as well—wires, pipes, sewage disposal, gas tanks and lines—and including these items in the book. Other important bits of photographic history are beginning to find their way into the book, too, such as photos of emblematic moments during the construction and exterior photos at different phases.

The owner's manual is like a textbook on the house—Years ago, we began collecting appliance and equipment manuals, putting them with the roughing book and leaving them for the owners once the house was built. Our clients are deeply interested in the operation of their houses, the sources of the materials and the people who put them together.

At some point it occurred to us that we could expand this into a real owner's manual full of useful information about the house, its materials and systems, and its maintenance (sidebar p. 77). Like automobiles, houses are operated, and they function better and last longer if their operators understand them.

In its present form, the owner's manual doesn't contain enough information—there's so much more to say. But as we learn more, the manuals expand. For instance, a friend is writing a basic wood-science primer and a basic building-science primer that we hope to incorporate into every owner's manual. Along with neglect, water and moisture are the primary enemies of buildings. These two primers will communicate basic information about water and moisture as they relate to wood and building components, and will discuss the fundamentals of houses and occupant health.

Most of the information in the manual is practical, but some is more compelling. For instance, we use a tremendous amount of salvaged materials. People love to know where the parts of



The story of a house. Photos in the roughing books (lower left) are keyed to the floor plans (top). The owner's manual (lower right) contains maintenance instructions, appliance and equipment manuals, building permits and more.

No secrets here. The photo at left was taken just after rough framing was completed and once wiring, plumbing and mechanicals went in. At right is the finished wall. Can you find a spot where you wouldn't want to hang a picture?



their house came from. The history of these materials and the stories behind them excite the imagination. Each manual contains a "materials" section that lists 10 to 20 building components and explains where they come from, how things are made and what they're made of.

On one house we built recently, the exterior detailing, screened porch, deck railings and outdoor-shower enclosure were made of salvaged cypress that came from dismantled beer tanks at the Narragansett Brewery in Rhode Island.

Give that information to the homeowners, and suddenly there's a new life to the building. The owners now understand why their screened doors smell like beer. The house, its owners and its past all become more intimately connected to one another by the knowledge of the origin of its materials.

Compiling the bits and pieces into an owner's manual—The first owner's manual began with a collection of product literature and warranties in a loose-leaf notebook. Over time, we added some basic materials about maintenance and an introductory letter to welcome the owners to their new house. We've learned that it's important to identify early on what will be in the owner's manual and to collect information from the beginning of the project so that it isn't necessary to generate it or hunt for it at the end.

Gradually, we added more information, refined the maintenance recommendations, which we write with the help of subcontractors; described the various systems (heating, ventilation, potable water, waste disposal, communications, lighting, etc.) and how they work; and listed all subcontractors involved with the house and those with whom we recommend ongoing service relationships, along with telephone numbers. The manual also provides data about the house and its construction (size, blower-door test results, etc.), and includes permit and regulatory information, water-quality tests and as-built specifications. Lately, we have included information about the site, recommendations for how the landscape may evolve over time and some of the sketches and drawings that led to the finished plans.

We collect all this information for each project in a three-ring, loose-leaf binder. The table of contents is color-coded and relates to colored tab dividers for each section.

Owner's manuals are time-consuming. Tim Mathiesen, the person in our office who has primary responsibility for assembling the manuals, estimates that it takes up to 20 hours to produce each one.

Both documents are good for business—The owner's manual and the roughing book provide an opportunity to ease the owners through

Owner's manual checklist

Here's what South Mountain Company's typical table of contents looks like.

I. Introduction: Welcome to the house and a guide to the manual

II. Project participants

- A. Design/construction team
- B. Subcontractors (with recommendations about whom to call for regular service or maintenance)

III. Building data

- A. Chronology of the project and square-foot calculations
- B. As-built specifications (lists all materials, products and equipment used in the house)
- C. Description and design objectives (program information)
- D. Miscellaneous (stories or anecdotes about the project, photos of special occasions)

IV. Materials and materials' history (includes information on interesting salvaged, recycled or resource-efficient materials)

V. Maintenance and operation

- A. General-maintenance recommendations
- B. A general discussion of moisture in houses
- C. Specific operating and maintenance instructions for such things as:
 - 1. Septic system
 - 2. Ventilation system
 - 3. Fireplace
 - 4. Heating system
 - 5. Alarm system
 - 6. Lighting and lamps
 - 7. Communications and entertainment systems
 - 8. Appliances
 - 9. Paints and finishes
 - 10. Tile
 - 11. Plaster
 - 12. Exterior woodwork
 - 13. Interior woodwork

VI. Site and landscape

- A. Site and landscape-design program
- B. Maintenance and development recommendations
- C. Permit information
- D. Sewage-disposal plan (septic-design drawings)
- E. Well-data and water-quality reports

VII. Plans and sketches (complete set of plans, plus any useful or interesting design sketches)

VIII. Appliance/equipment manuals and warranties

the difficult period of moving in. For example, the opening letter, or "Guide to the Manual," as we call it, allows us to bring some closure to the lengthy process of designing and building a house, to introduce the owners to the house, to tell them about the owner's manual and roughing book, and to provide the basis for a long-term relationship with our company.

When the owners move in, our relationship with them changes. Where we recently provided architectural and building services, we now provide long-term maintenance and troubleshooting services. This is the only real marketing we do; it leads to future projects with the same client and recommendations for other projects.

Most houses are left hanging at the moment of occupancy: Everyone involved in the process of creating the house suddenly disappears. By creating and handing over the books, we remain involved, we serve the client (and the building) more completely, and we keep clear our most important path to new knowledge—our buildings and how they work.

When there are problems, we have a good basis for determining what went wrong. Because we often try new materials and approaches and because many new ideas don't work, we must remain involved with our buildings and fix what needs fixing. The owner's manual is our way in and our way of learning.

If I were a banker, I'd require a roughing book and an owner's manual for every house I financed. If I were an insurer, I'd do the same. If I wrote the building code, I'd require these for every house, just as smoke alarms are required. If I were a real-estate agent, it would make my job easier if homes I were selling had roughing books and owner's manuals. If I were shopping for a new house, I'd be as happy to find these as I would to receive a favorable home inspection.

Finishing a house and turning it over to its new owners is a little like letting a prisoner out on parole. Now comes the test to see if it's truly ready to behave. The English architect Charles Voysey said, "Simplicity, sincerity, repose, directness, and frankness are moral qualities as essential to good architecture as to good people." But if a building doesn't work, these qualities mean little, and the house becomes a source of irritation rather than one of pleasure.

Owner's manuals and roughing books are some of the tools that we can use to assure that the house passes the test and becomes the thing we hoped it would be: a home that provides comfort and security while it survives the rigors of time. □

John Abrams is president of South Mountain Company Inc., an employee-owned design/build firm in Chilmark, Massachusetts. Photos by Tim Mathiesen, except where noted.