

Oregon Building Codes Agency

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CITY OF TUALATIN

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MAYOR	_____	COUNCIL	_____
ADMIN	_____	ADMIN. ASST.	_____
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PARKS & RECR.	_____	SECURITY	_____
DEPT.	_____	CITY ATTORNEY	_____
LEGISL.	_____	EDUCATION	_____



An Oregon Mosaic

Building Codes Agency



MISSION

To safeguard Oregonians' **LIFE, HEALTH, PROPERTY, and WELFARE**—including **energy conservation and barrier-free access**—through adopting and administering uniform standards for construction or installation of buildings, structures, and various electrical and mechanical devices or equipment, and through insuring the competency of persons engaged in the related trades and businesses.

GOALS

1. Adopt uniform building codes based, as nearly as practicable, on national codes.
2. Administer the uniform building codes in a timely manner and in such a way as to protect public safety and enhance Oregon's economic development.
3. Work with local jurisdictions to achieve uniform application of the State building codes.
4. Consolidate and clarify all laws and regulations governing administration of building codes, licensing, and certification.
5. Achieve the best use of available resources to provide effective and efficient service to the public.
6. Provide forums for interested groups to search for ways to better achieve the Agency's mission for the benefit of all Oregonians.
7. Provide for professional development of administrative and enforcement personnel.
8. Provide for professional development of all Agency staff members.

OBJECTIVES

1. Develop a plan for making optimum use of information technology.
2. Complete analysis of functions of the Agency, with the purpose of identifying and implementing measures to improve effectiveness and efficiency.
3. Work with local governments, industry representatives, and consumers to analyze the most efficient and effective methods of sharing building codes administration among State and local governments.
4. Continue development of the process for analyzing the economic effect of building code administration.
5. Monitor and evaluate strategies and activities to insure the mission of the Agency is fulfilled.
6. Continue to develop and implement communications links with interested groups and individuals.



Dan Smith
Administrator



Lee Darrel
Assistant Administrator



Greg N. Strombeck
Assistant Administrator

To the Reader:

We hope this brochure will answer many questions about the role and administration of building codes. Such an endeavor requires the cooperation of a number of people. The following persons have contributed information and guidance which has helped us all better understand the role of codes administration in providing public safety and promoting development. Our thanks to:

Dan Hays, for the text, design, and photos.

Walt Friday of the Communications Section for the covers and figures.

Ron Chastain, of Chastain Economic Consulting of Salem, for his aid and contributions to the economic sections.

Portland General Electric for permission to enter and photograph the Boardman power plant.

The State boards for their cooperation:

Board of Boiler Rules
Certification and Training Advisory Board
Elevator Safety Board
Energy Conservation Board
Manufactured Structures and Parks Advisory Board
State Electrical Board
State Plumbing Board
Structural Code Advisory Board



Dan Smith
Administrator

An Oregon Mosaic

Building codes. We all know what those are, right?

Building codes are a bunch of red tape set up to keep people jumping through silly government hoops when all they want to do is improve their property. Building codes are a lot of stupid rules which only increase the cost of a new house or business and slow down the building process.

You're always in trouble with building codes. It starts out right from the beginning. You have to get some expensive permit to build or remodel anything. That's a waste of time, especially since it takes forever to get the stupid permit. While all those bureaucrats sit on their hands and sloop at the public trough, you wait. And, of course, you have to pay for the permit. Another tax they haven't got the guts to call a tax. And we all know the assessor is just going to raise our taxes again once we finish building, so this permit tax is really unnecessary.

So okay, you jump through all the hoops and you've got your permits. Now you can't just go ahead and get the job done the right way. You have to do it the government way, and we all know what that means.

Can you use that new insulation you heard about? Of course not. The bigwigs say it hasn't been approved. . . but if you'll wait, they'll get around to it. Everything is wait, wait, wait. You have to stop work all the time so some guy in a tie can come around and stare at things. If you're lucky, he'll say it's all okay. But like as not he'll say you've got to redo something, or change something, or he'll say you can't do something. By the time the bureaucrats are done doing their number on you, your one-month job has taken three months and cost twice what it should.

That's what building codes do, right?

Well, that's the "conventional wisdom." That's the story you'll hear from a lot of people. Building codes waste time, cost money, and don't do any good.

But "conventional wisdom" usually isn't very accurate. It's usually the opinion of people who haven't thought about the issue. It is, in fact, an uninformed opinion. And when you take a closer look, uninformed opinion doesn't hold up. So conventional wisdom is very seldom very wise.

So here's what building codes really do:

Save lives.

Protect property.

Protect health.

Promote energy conservation.

Promote economic development.

Because, in point of fact, building codes aren't designed to get in the way—they're designed to protect the public welfare.

How do they do that?

Let's take a look at one problem: fire.

On August 17, 1989, the *Salem Statesman-Journal* reported that while fire deaths in the United States hit a "seven-year high" in 1988, "fire deaths in Oregon were at an all-time low." In fact, fire deaths have been decreasing in Oregon since 1977.

Why?

For a number of reasons. But a great deal of it has to do with building codes. Building codes require the use of noncombustible materials wherever possible. Building codes require proper installation of heating systems, including wood stoves. Building codes forbid the use of materials which, when burned, emit toxic fumes. Building codes require the inclusion of specific numbers of exits for all public buildings, properly placed and prominently identified. The Oregon law which requires smoke detectors in all residences is also a building codes issue.

Building codes don't allow for "cut corners." Building codes require proper wiring properly installed. Building codes require proper installation of stoves, fireplaces, wood stoves, furnaces—any heating or cooking unit. Building codes require the use of materials which have been tested by an approved laboratory and have proven to be safe.

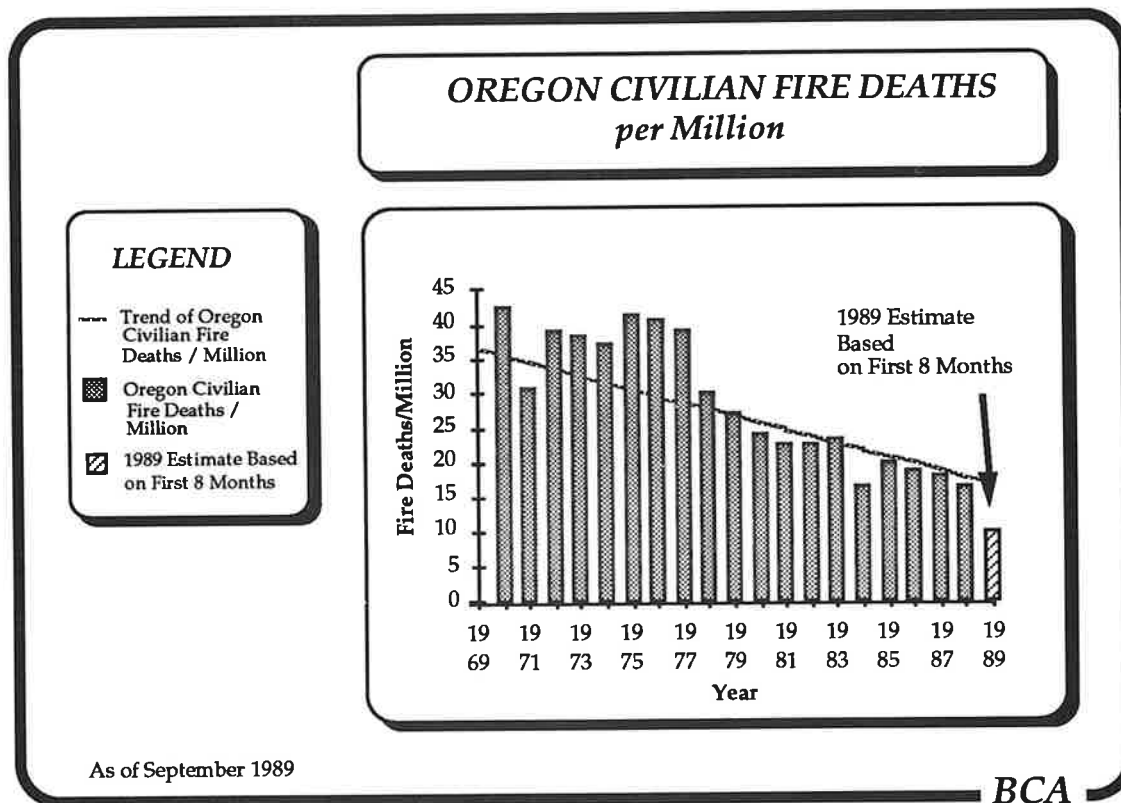


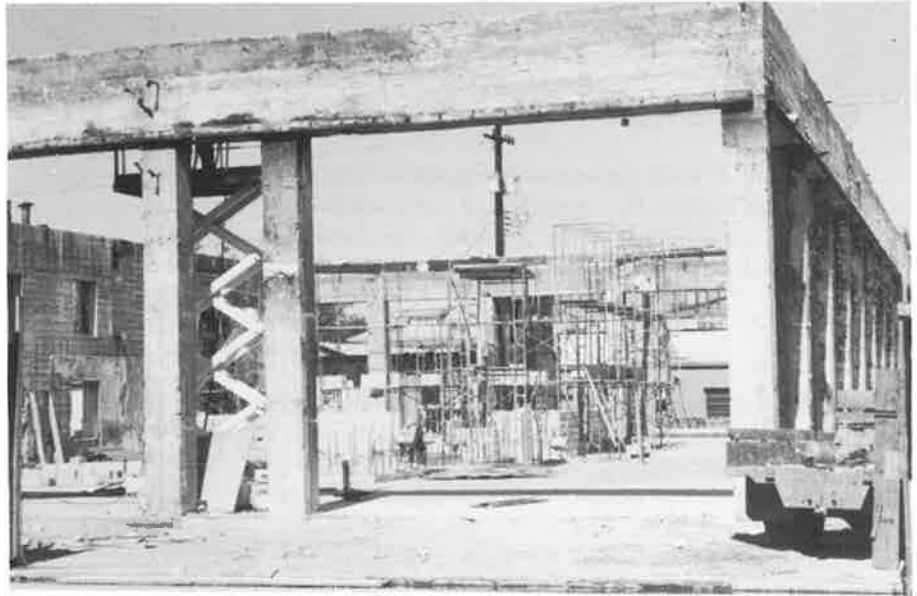
Figure 1

Figure 1 shows you at a glance that Oregon civilian fire deaths have decreased over the last ten years. A lot of the credit for this positive statistic has to go to Oregon building codes.

Quite a different story from the "conventional wisdom," isn't it?

But then, quite a bit of "conventional wisdom" is based on a lack of understanding. To really understand building codes, you have to understand what they are, and where they come from.

Simply stated, building codes are regulations which are designed to insure life, health, and property. This goal is accomplished through requiring that materials used in construction are



Fire destroyed the historic Medford Hotel in southern Oregon—but it will be rebuilt. Here, the only surviving part of the structure undergoes preparation for rebuilding.

tested and approved, that construction techniques are tested and approved, and that those involved in the construction process are qualified to do their jobs.

The following is the official "Mission Statement" of the Oregon Building Codes Agency:

Safeguard Oregonians' life, health, property, and welfare—including energy conservation and barrier-free access—through adopting and administering uniform standards for construction or installation of buildings, structures, and various electrical and mechanical devices or equipment, and through insuring the competency of persons engaged in the related trades and businesses.

That's quite a mouthful. Boiled down to the basics, it means that building codes are designed to insure that all buildings are safe.

Seen in this light, the "conventional wisdom" that all codes are obstructive breaks down rather quickly. In fact, codes are designed to minimize collapse, fire, pollution, and accident. Codes are designed to make homes and workplaces safe, healthy places to be. Codes are designed to make sure that all businesses and public buildings are energy efficient and accessible to everyone.

Codes are a sophisticated method of protecting the public, of helping to insure "life, liberty, and the pursuit of happiness." And they didn't spring up overnight.

The technology is there to address all the problems. But inconsistent administration has held things back.

Dan Smith
Administrator

The History of Building Codes

Building codes represent

"a catalog of those features of construction which experience has proved require the imposition of public authority in order to curb the activities of the ignorant, the careless, and the unscrupulous."

Robert E. O'Bannon
Building Department Administration

It is easy to think of government regulation as a new idea, especially for Americans. After all, our country was founded on ideas of freedom. Our government is supposed to be responsive to the people, not tell them what to do.

The truth is that what we now call "building codes" have a very long history. The first such codes for which we have records date back more than 4,000 years. These regulations are included in the famed "Code of Hammurabi."

Those who find today's building codes too stringent might learn a lesson from these early codes. Under Hammurabi, if a wall collapsed or a building failed, the builder had to repair it at his own expense. If the owner was killed in the collapse, the builder was executed!

When the City of Rome burned in 64 A.D., the emperor Nero had it rebuilt under strict codes. Similarly, when London burned in 1666, Parliament passed the "London Building Act," a set of building codes. The Great Chicago Fire of 1871 also produced a set of building codes.

By 1905, the first solid steps toward creating a uniform building code were being taken in America. By 1937, this process was well on its way.

A common thread is easy to see in this brief history (see Appendix A for a more detailed history of building codes). As Robert O'Bannon puts it in his *Building Department Administration*, almost "the Bible" of code administration, "building regulation, as we know it today, is the result of an evolutionary process that has its roots deeply imbedded in disaster and tragedy."

In other words, building codes have come about almost always as a reaction to loss of life and property. They are what O'Bannon terms "corrective regulation." After terrible fires, collapses, and other disasters, governmental bodies issue codes to correct longstanding deficiencies in construction. This pattern, valid to this very day, does not have to be repeated in the future.

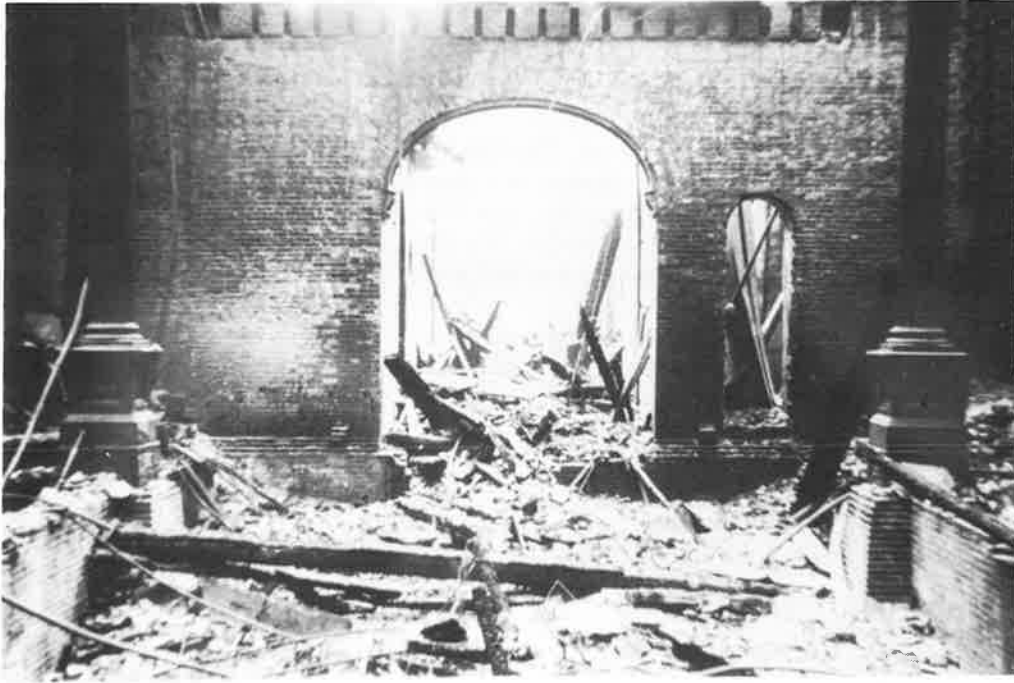
Building Codes in Oregon's History

The history of formal building codes in Oregon basically parallels national history. But the history of the State's involvement as an actual enforcement agency is short.

In 1971, the Oregon Legislature considered a bill proposing a unified code system. At that time, Oregon had electrical, elevator, mobile home, and boiler codes in effect. Each had its own set of inspectors and its own permit system. A State plumbing code existed, but it had no permit or inspection service—only a

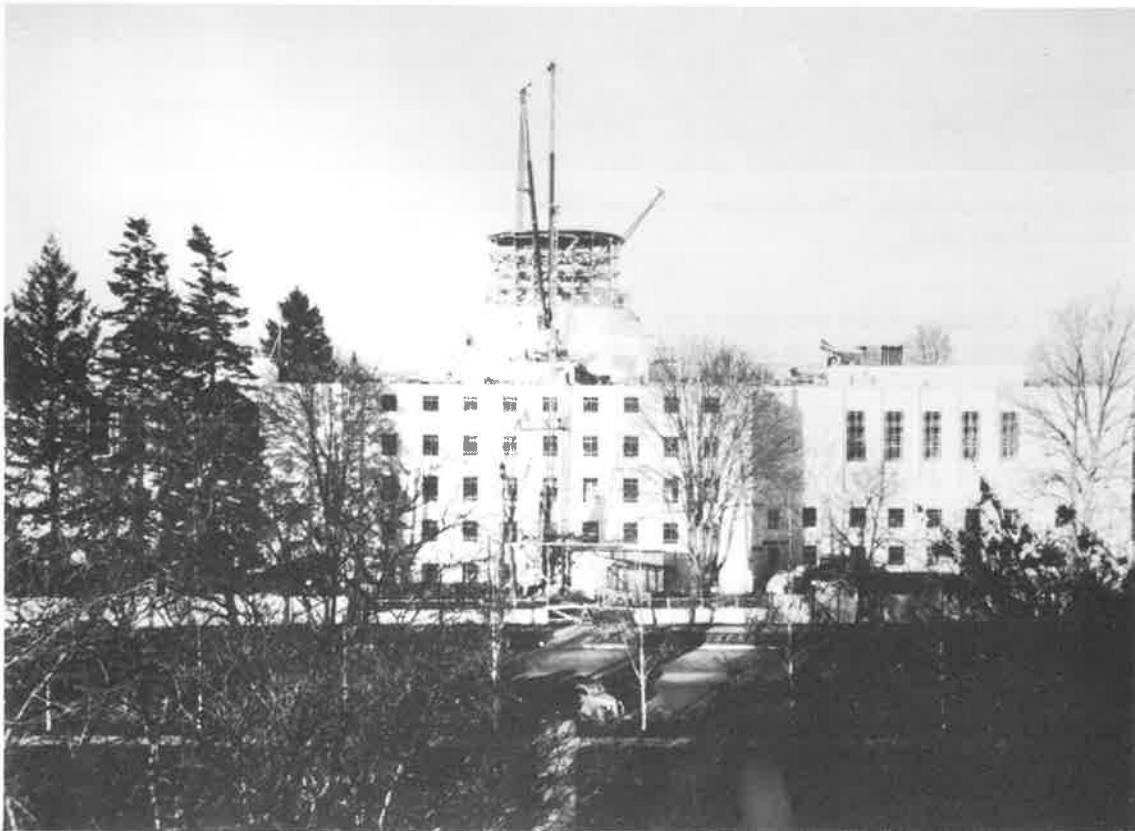


Oregon State Archives, donation of Mrs. Grace L. Hain



Oregon State Archives, donation of Mrs. Grace L. Hain

Oregon's second Capitol (replacing an 1854 building destroyed by fire in 1855) burned on the night of April 25, 1935. Left: this view of the dome on fire was taken by Charles E. Perry, Sr., of Salem from the bell tower of Waller Hall at Willamette University. His view of the destroyed interior (above) was taken the following day. The present Capitol, seen below under construction in 1938 in a Frank I. Jones photo, was completed in 1939. Too often, building codes are a reaction to such disasters instead of planned measures taken to help prevent tragedy.



Oregon State Archives

small staff which aided local jurisdictions. While there was no uniform building code in effect, the State Fire Marshal had adopted part of the Uniform Building Code as the State of Oregon Fire and Life Safety Code.

Enforcement of the existing codes was scattered. The Health Department was in charge of plumbing. The Bureau of Labor administered electrical, boiler, and elevator codes. The State Fire Marshal was in charge of fire safety concerns. Most (but not all) large Oregon cities had construction codes, but very few had mechanical codes.

In fact, sixteen counties had no codes at all, nor did most of Oregon's small cities and towns. The codes which did exist were far from uniform. At one time, there were more than 50 versions of the Uniform Building Code in effect in Portland alone!



Oregon continues to grow and develop. The new Howard Johnson Plaza Hotel in Tigard is only one addition to our thriving economic development.

While the 1971 Legislature did not pass a unified code program, some action was taken: the existing code enforcement units were consolidated into the Department of Commerce. The responsibility was given to two divisions—the State Fire Marshal's Office and the Safety Division.

The 1973 Legislature did pass a bill calling for a statewide building code. This spoke to the need for:

statewide code uniformity;

adoption of model codes;

a State building code composed of the then-existing specialty codes (plumbing, electrical, boiler, elevator);

addition of structural and mechanical codes;

local enforcement of codes;

certification of building officials and inspectors;

a training program for inspectors;

a study program.

Another 1973 bill called for the development of a plumbing permit fee and inspection system.

The most recent change has been the creation of the Building Codes Agency as a separate entity. The Agency split off from the Department of Commerce in 1987. For the first time, Oregon had an agency dedicated specifically to public safety and economic development through the growth and administration of building codes.



Public buildings don't have to be sterile and uninteresting. The lodge at Multnomah Falls is a case in point.



People aren't the only ones who need safe, comfortable housing. The homes of the residents of the Washington Park Zoo in Portland are just as subject to building codes as your own home.

Yesterday, Today, and Tomorrow

It must be admitted that in the past there has been a certain amount of truth to the idea that building codes could be obstructive. There is more than a little truth to not-so-long-ago memories when trying to weave one's way through a maze of Oregon's often-conflicting laws and regulations was the rule and not the exception.

Of course, the reason for varying interpretations of the code and conflicting laws and rules isn't as simple as it might seem. It is true that some of this was (and is) due to lack of uniform training. Some of it is also due to varying—and shifting—priorities among those agencies charged with building codes around the state. But there's another reason as well.

We all know what Oregon is—that's a given. Oregon is the 19th century Eden, the end of the Oregon Trail, the promised land

Oregon is rich in timber and beauty. A view of Mt. Washington from State Highway 126.



of rich, lush farmland which drew pioneers across the vast central plains and over the forbidding Rockies

We see it every day as we drive through the Willamette Valley: vegetable and grass seed farms, orchards, dairy farming. And in the cities which grew up near the streams and rivers of this paradise we find manufacturing, banking, retail, commerce of all sorts. This is Oregon.

If all you know about Oregon is the Willamette Valley.

Oregon is also vast stretches of timber, ranges of mountains and hills, high desert plateaus, fossil beds, cattle range, painted hills, gold fields, deserts, the Columbia Gorge, ghost towns, the onion fields of the east, the stretches of sandy beach, ski lodges, the rugged scenic coast, volcanos, lakes, rivers, streams, swamps.



Oregon's varied landscape produces a wide variety of building problems. Some of Oregon's beach homes are literally on the beach, as may be seen in this view of a residential section of Cannon Beach.



Oregon's most famous urban landscape: Portland on a hazy day. This telephoto view was taken from the grounds of Pittock Mansion on a typical September day.

Oregon is a land of farmers, cattlemen, sheepmen, poultry farmers, timbermen, traders, artists, joggers, wind surfers, craftsmen, homemakers, designers, fishermen, entertainers, hosts, manufacturers, shippers, educators, builders.

Oregon is rain, drought, clear skies, snow, heat, ice, and wind.

Oregon is sand, loam, turf, rocks, clay, bottom land.

Oregon is orchards of apples, peaches, pears and prunes. Oregon is grassseed fields, hops, hay, corn, peas, winter wheat, beans, mushrooms. Oregon is flowers, shrubs, and trees. Oregon is vineyards and Christmas trees.

Oregon is mobile homes, running shoes, computers, modular buildings, timber, paper, fishing, shipping, wine.

Oregon is the Portland metropolitan area, the Salem political arena, the Eugene "experience." It is also Shakespeare and education in Ashland, the Oregon Caves, Crater Lake, the John Day Fossil Beds, the agriculture of Ontario, the cattle and fabric of Pendleton, the skiing and timber of Bend, the plains of Klamath Falls and Lakeview, the tourism of Florence, the fishing of Depoe Bay, the coastal life of Garibaldi and Gold Beach. It is Ione and Antelope and Arlington every bit as much as Portland and Eugene. It is Shaniko, Hardman, and Richmond in both memory and present.

Oregon is Hispanics, Native Americans, Old Believers, black enterprise, traditional white America, and newcomers from Viet Nam, Laos, Japan, and China. It is immigrants from around the world and from within the country.

Oregon is recreation, preservation, development, tradition, history, growth.

And the Uniform Building Code has to apply to all those needs, all those areas, all those facts of life.

It also has to apply to all those soil types, all those climates, all those environments. Because Oregon is, in a sense, a nation all by itself, with diverse landscapes, qualities, and needs.

The fact is, the job can be done. All it takes is a willingness to change, to grow. But in the past, people weren't always willing.

As Dan Smith, Administrator of Oregon's Building Codes Agency, puts it: "In the past, we were entirely reactive, in every sense of the word. We reacted to political pressure, to the industry...we were incapable of planning



Hillside homes are not unusual in Oregon. Most of Astoria is challenging to the builder, as may be seen in this view of that historic city. Established in 1811, Astoria suffered tragedy in 1922, when much of the downtown area burned.



The ever-changing terrain of Oregon's Rogue Valley includes Medford (above, seen from Rogue Valley Manor) and picturesque Jacksonville (below, seen from its famed cemetery). This valley is also famous for orchards, Shakespeare, gold, the wild Rogue River, mesas, skiing, education, and colorful politicians.



for the future, because we were understaffed and not unified. So we settled for being reactive, which was a negative stance—and an obstructionist stance."

In those days, and in the early days of the actual Building Codes Agency, there was, according to Lee Darrel, Assistant Administrator, "a real crazy quilt of activities. There was no measurable, articulated, or logical mission." Those persons who dealt with building codes were simply involved in whatever activity was foremost at any given moment.

But the necessary change was—and is—taking place.

To begin with, the Agency developed an internal mission: to get all the elements to work together toward a common goal. At first, the success of this movement merely allowed the agency to react more fully.

Gradually, however, the process of change through education took hold. The agency began to turn into a body which, through a change in attitude and climate, could be **proactive**. That is, an agency which could take the lead, anticipate problems, and solve them before they became serious. A new agency was born, one with a measurable, articulated, logical, and clear mission. An agency which strikes a proper balance between the needs of public safety and the needs for development.

This is an agency which has at its core a key question: what can we do better?

At the moment, Smith says, the agency is **thinking** proactively.

The core question is broken down into:

"How can we be of use to Oregon?"

"Are we ready to anticipate and respond to needs?"

"Have we done our homework?"

So Building Codes Agency is in the process of maturation, in the process of a **planned** mission. At the heart of all this are the codes themselves.

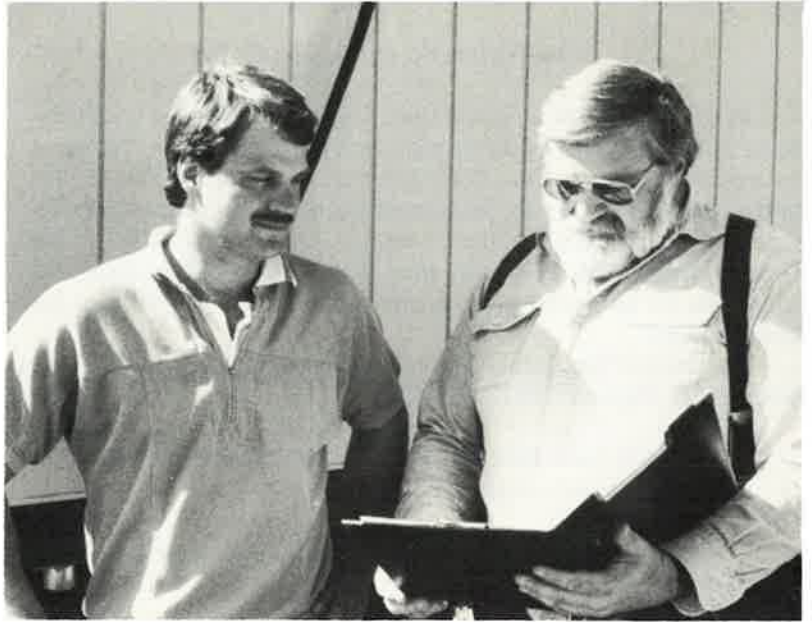
Codes are, by their very nature, minimums. That is, standards are designed to allow as much freedom as possible—but not to allow the use of unsafe or untested materials, the use of unsafe or untested building techniques, or the employment of workers who are not sufficiently trained to do the job safely.

If properly administered, codes can result in structures which, under conditions current at the time of construction, are safe and efficient. No one is prevented from building a structure which meets even more stringent standards than those set by the codes. But shoddy materials and poor workmanship are eliminated by proper codes and proper, uniform administration of codes.

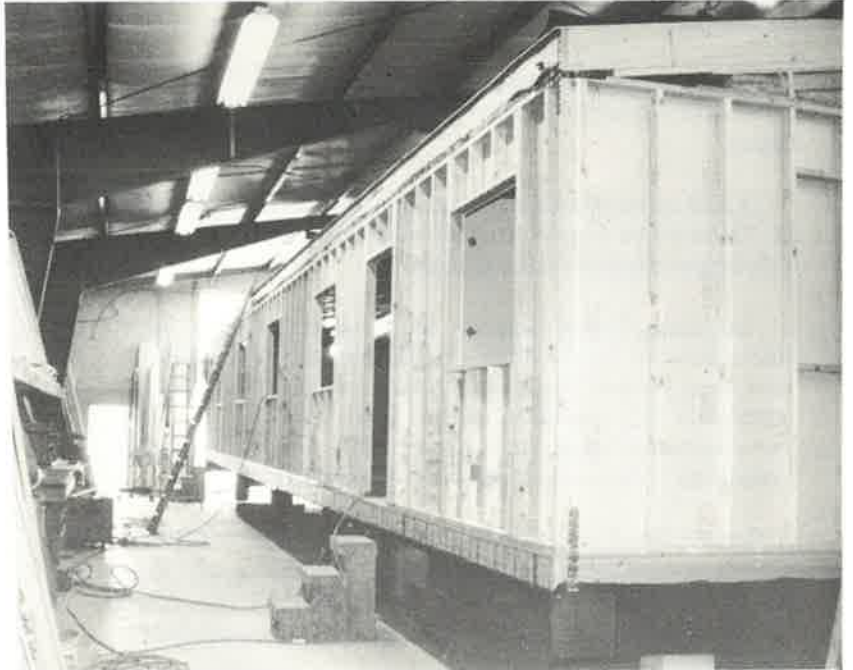
Today, when you hear the statement "we're with the government, and we're here to help you," it's a **joke** ...a sure way to get a derisive laugh. We want to make that statement a positive one. When we say it, we **mean it**..

Lee Darrel
Assistant Administrator

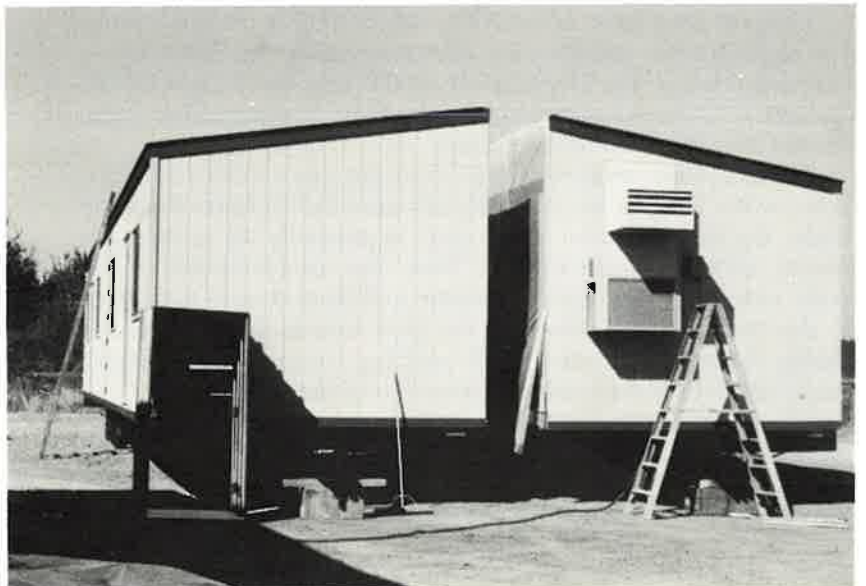
Blazer Industries, of Silverton, produces modular buildings. Seen here consulting on an inspection at Blazer are Gary Tesch (BCA State Inspector, Modular Division) and Charles Hill (Production Coordinator for Blazer).



Blazer builds its modular offices directly on metal frames, which serve as both transport and partial foundations.



A Blazer modular unit undergoes final finishing touches.



Administration of Oregon Codes

At the present time, while the entire state operates under the State building code, the code may be administered by the State, by a county, or by a city. If a city elects to administer all or part of the code, it may do so. Whatever parts of the code the city decides not to administer next become the responsibility of the county within which that city lies. The State finally becomes responsible for whatever parts of the codes the county decides not to administer.

The present breakdown of administrative responsibility is illustrated in Figures 2 to 12. Briefly:

The State has elected to retain administration of boiler and elevator codes in all 36 counties.

Fifteen counties have chosen to retain administration of plumbing codes.

Ten counties have elected to administer electrical codes.

Structural codes remain the responsibility of 21 counties (one other county shares this responsibility with the State).

Local administration of mechanical codes is the rule in 19 counties (again, one county has elected to share this responsibility with the State).

Building Codes Agency also has jurisdiction over manufactured home hook-up standards (20 counties retain local jurisdiction), manufactured home installation standards (22 counties retain local jurisdiction), and manufactured home park plan review and construction standards (17 counties retain local jurisdiction).

Finally, the Agency deals with recreation park plan review and construction standards (11 counties retain local jurisdiction) and enforcement of amusement ride rules. All 36 counties have elected to let the State administer the latter.

Oregon does have an industry which builds mobile homes. The codes for this industry are administered by the Federal government through the Department of Housing and Urban Development (HUD). As stated above, the State of Oregon has jurisdiction over hook-up of these units.

If this system seems complex, consider this further complication: while Oregon has officially adopted the Uniform Building Code, the interpretation of the code is presently up to each authority claiming jurisdiction. Thus, the interpretation of the same codes can vary within counties and from county to county. In the final analysis, however, the State retains the ultimate authority for administration of all building codes, and carries the responsibility for the final interpretation of the codes.

One way to remedy the present morass of conflicting interpretations is to require uniform training of all building codes inspectors. At the present time, Chemeketa Community College in Salem offers a course for those who wish to qualify as structural

Administration of Oregon Codes

As of July 1, 1989



Figure 2

Boiler Program

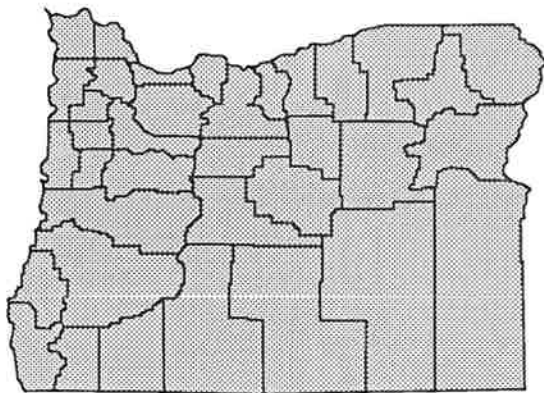


Figure 3

Elevator Program

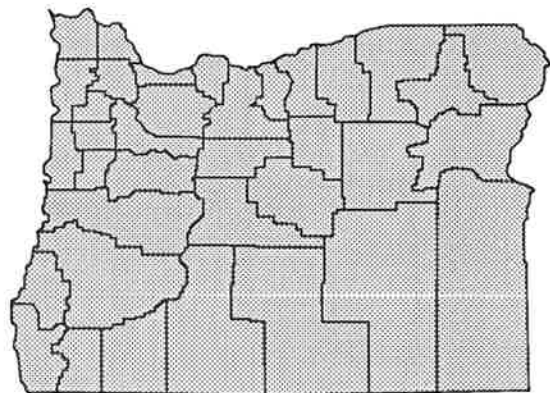
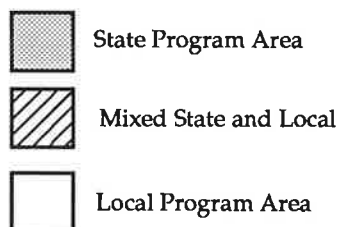


Figure 4



Administration of Oregon Codes

(continued)

As of July 1, 1989

Structural Program

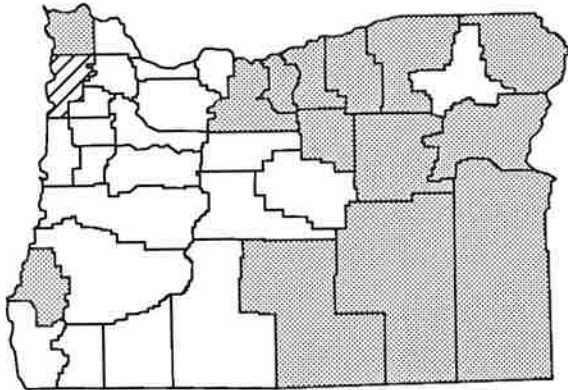


Figure 5

Mechanical Program

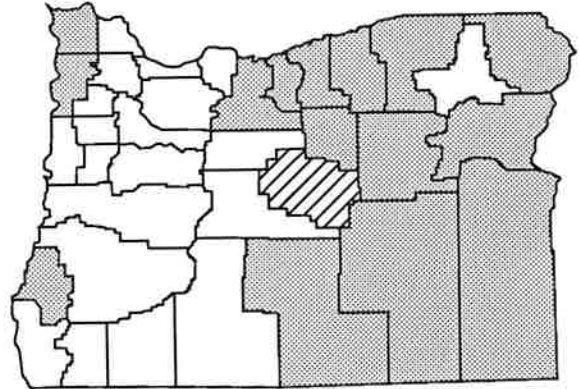


Figure 6

Plumbing Program

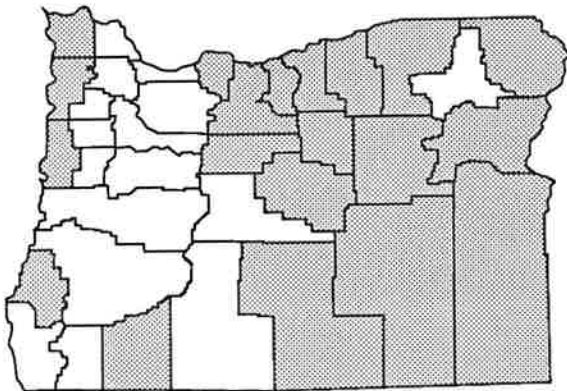


Figure 7

Electrical Program

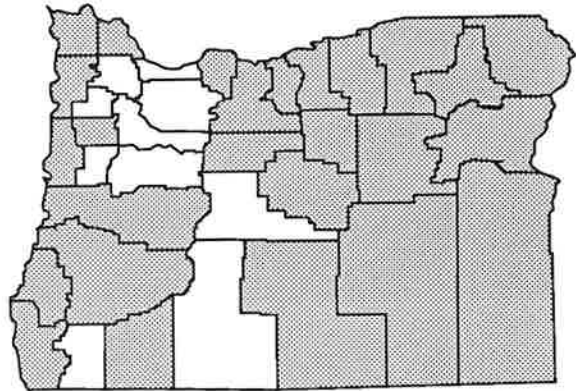
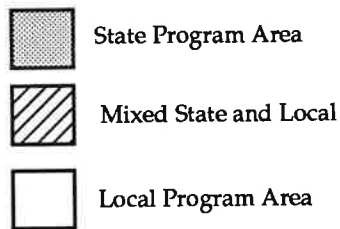


Figure 8



Administration of Oregon Codes

(continued)

As of July 1, 1989

Administration of Manufactured Home
Park Plan Review & Construction
Standards

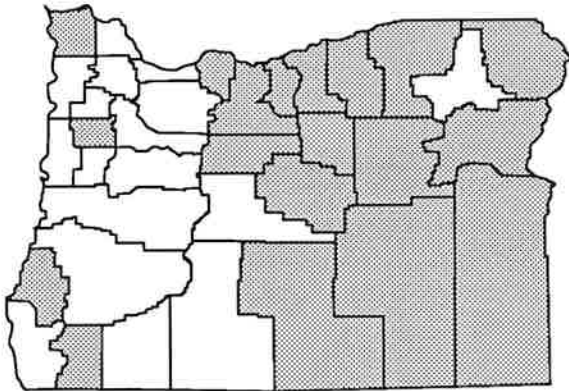


Figure 9

Administration of Recreation Park
Plan Review & Construction
Standards

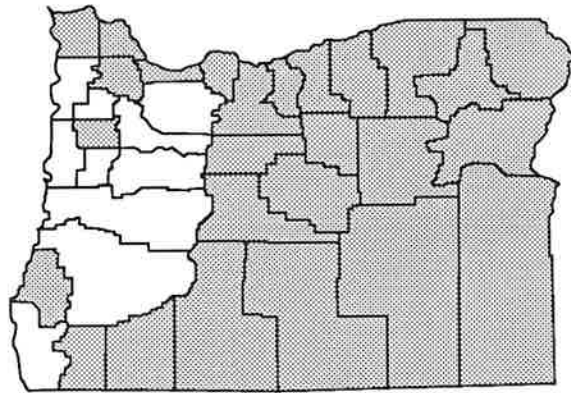


Figure 10

Administration of
Manufactured Home
Hook-up Standards

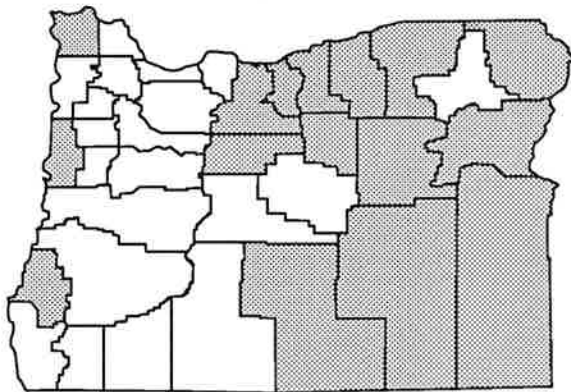


Figure 11

Administration of
Manufactured Home
Installation Standards

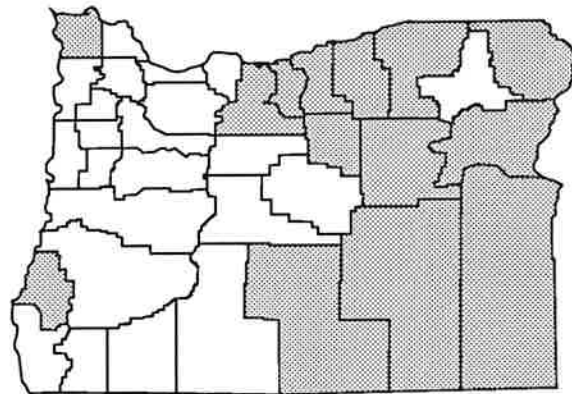
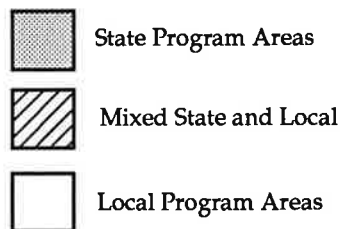


Figure 12



inspectors. Similar courses in other areas of codes—and in other areas of the state—could greatly improve the present situation.

One of the major changes the Building Codes Agency hopes to make in the near future involves charging local jurisdictions with the entire responsibility for the inspection process (with the State retaining the final authority). This, combined with uniform training and certification for all inspectors, would make for uniform administration of the Uniform Building Code. The Agency could then become a core of experts who could be called upon for advice or to render a final decision.

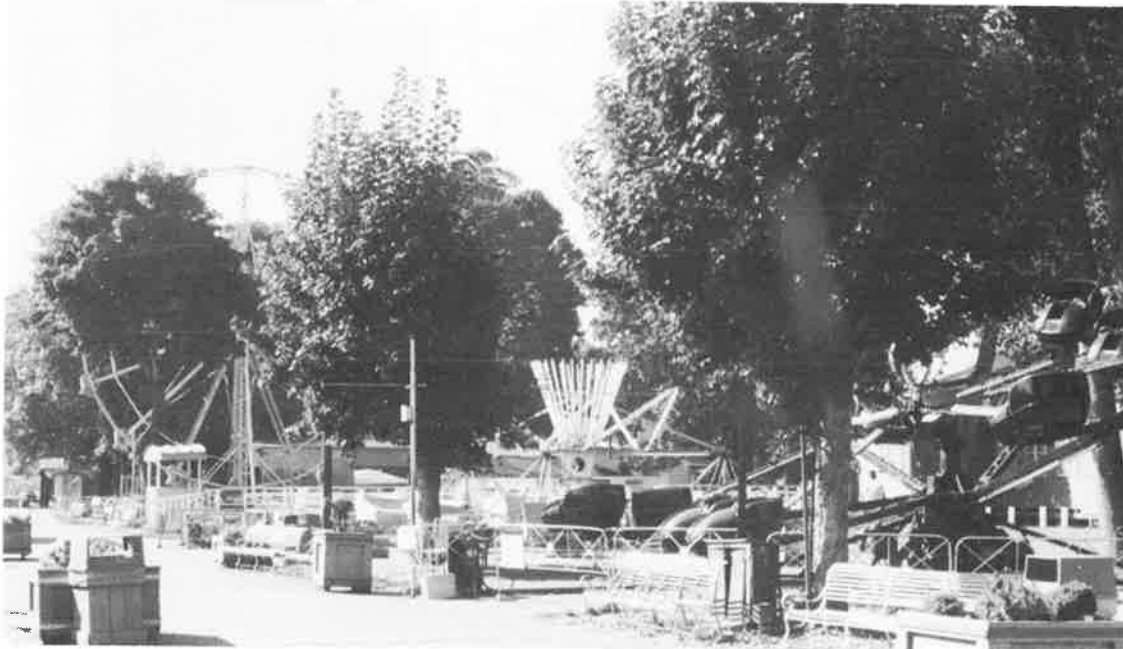
A recent economic survey conducted by Chastain Economic Consulting of Salem for the Building Codes Agency strongly suggests that this change is practical. The present state of the economy is strong, and continued growth is expected. The change to local jurisdiction of inspections could be made by increasing the fees involved in permits and inspections. Ron Chastain (of Chastain Economic Consulting) believes the increased cost per unit would be minimal, while the increase in efficiency of administration of building codes could be considerable. There would also be positive economic benefits to the public, through simplifying the process of regulation.

Figures 13 and 14 show the effect of the building construction industry on employment and payroll in Oregon. The percentage of employment which is generated or directly influenced by the building construction trades is considerable (see Appendix B for some economic detail). In effect, a healthy building construction industry means a healthier employment picture and, therefore, a healthier economy.

Thus, according to Chastain, "the anticipated change in code jurisdiction would be expected to increase the earning capacity of Oregon's citizens by spurring a considerable portion of the economy. This would offset the principal direct monetary effect of the change—an increase in fees. The proposed system would be more efficient, and therefore would contribute to our economic development effort."

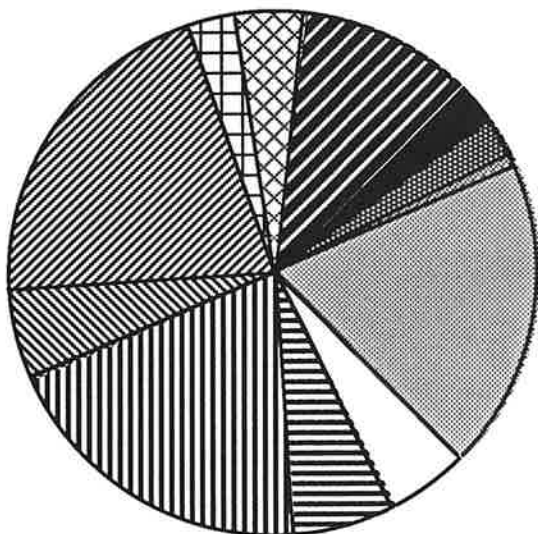
Under such a system, the Agency would be free to continue to grow in the areas of monitoring, testing, providing guidance and education, and anticipating and acting upon the needs of the construction industry and the people of Oregon. Under such a system, the Agency could fully develop its potential as an instrument of economic development for the people of Oregon.

Oregon's Building Codes Agency is also responsible for making certain amusement rides are just as safe as they are thrilling. Here, some rides at Portland's Oaks Amusement Park await their nightly crowds.



Total Oregon Employment, 1987 Average

(Based on Oregon Covered Insurance and Payrolls)



■	Agriculture, Forestry and Fishing	27,363
▣	Building Construction	29,036
▤	Heavy Construction	6,113
▥	Manufacturing and Mining	207,184
□	Transportation and Public Utilities	54,256
▦	Wholesale Trade	68,855
▧	Retail Trade	208,804
▨	Finance, Insurance and Real Estate	59,106
▩	Services	224,645
▪	Federal Government	30,362
▫	State Government	47,481
▬	Local Government	112,196
TOTAL:		1,075,609

Source: Oregon Employment Division

BCA

Figure 13

Oregon Employment and Payroll Directly Influenced by Building Codes

1987 Average

<i>Sector</i>	<i>Persons Influenced</i>	<i>Total in Industry</i>	<i>1987 Payroll Influenced</i>
Building Construction	29,036	29,036	\$ 590,634,314
Manufacturing (durable goods)	86,878	165,152	2,124,012,807
Electric, Gas, and Sanitary Service	8,777	8,777	296,671,283
Wholesale Trade	7,980	68,855	221,229,276
Retail Trade	14,425	208,804	216,300,661
Finance, Insurance, and Real Estate	49,095	59,106	916,883,951
Total	196,191	539,730	\$4,365,732,292

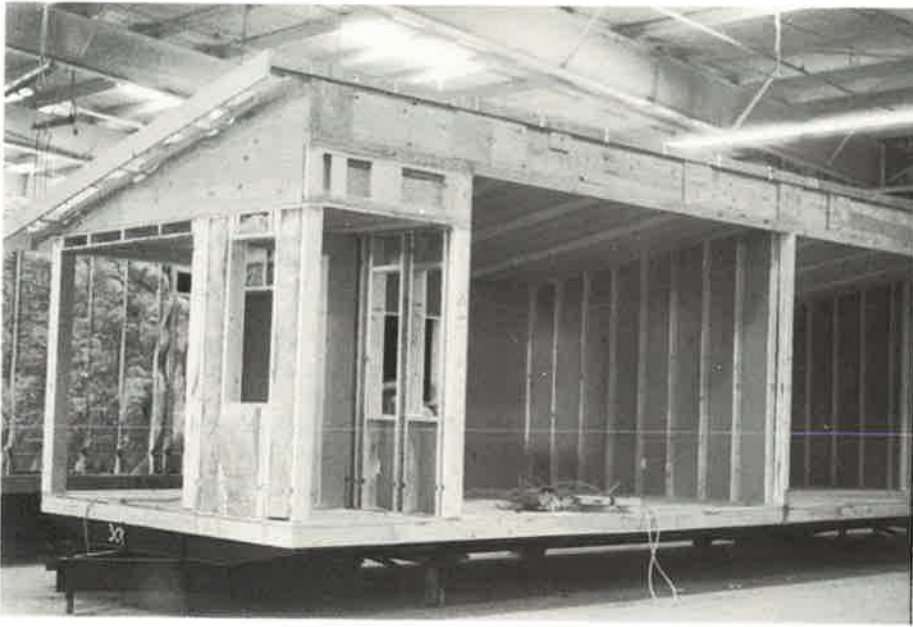
This represents 18.24% of total Oregon 1987 employment and 21.49% of total Oregon 1987 payroll (does not include Federal, State, and local building officials and staff).

Based on figures from the Oregon Employment Division (see Appendix B).

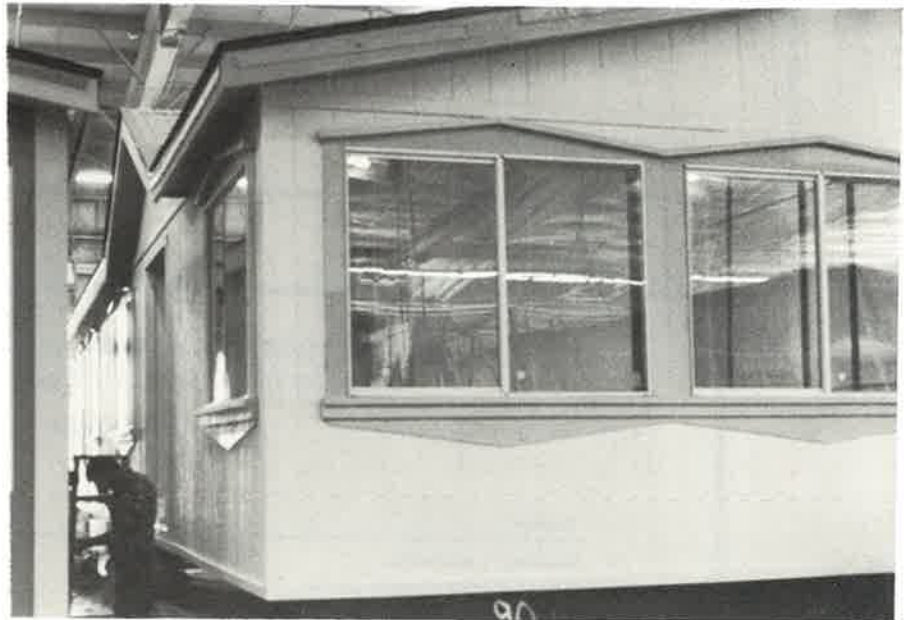
BCA

Figure 14

Building codes have an effect on more than building construction. They make a difference in the rate of manufacture of durable goods—most especially in the areas of lumber and wood products; furniture and fixtures; stone, clay, and glass products; and fabricated metal products. They also have a major effect on finance and insurance, wholesale and retail trade, and services. Obviously, the property tax and income tax revenues for the State are greatly affected by the codes and their administration.

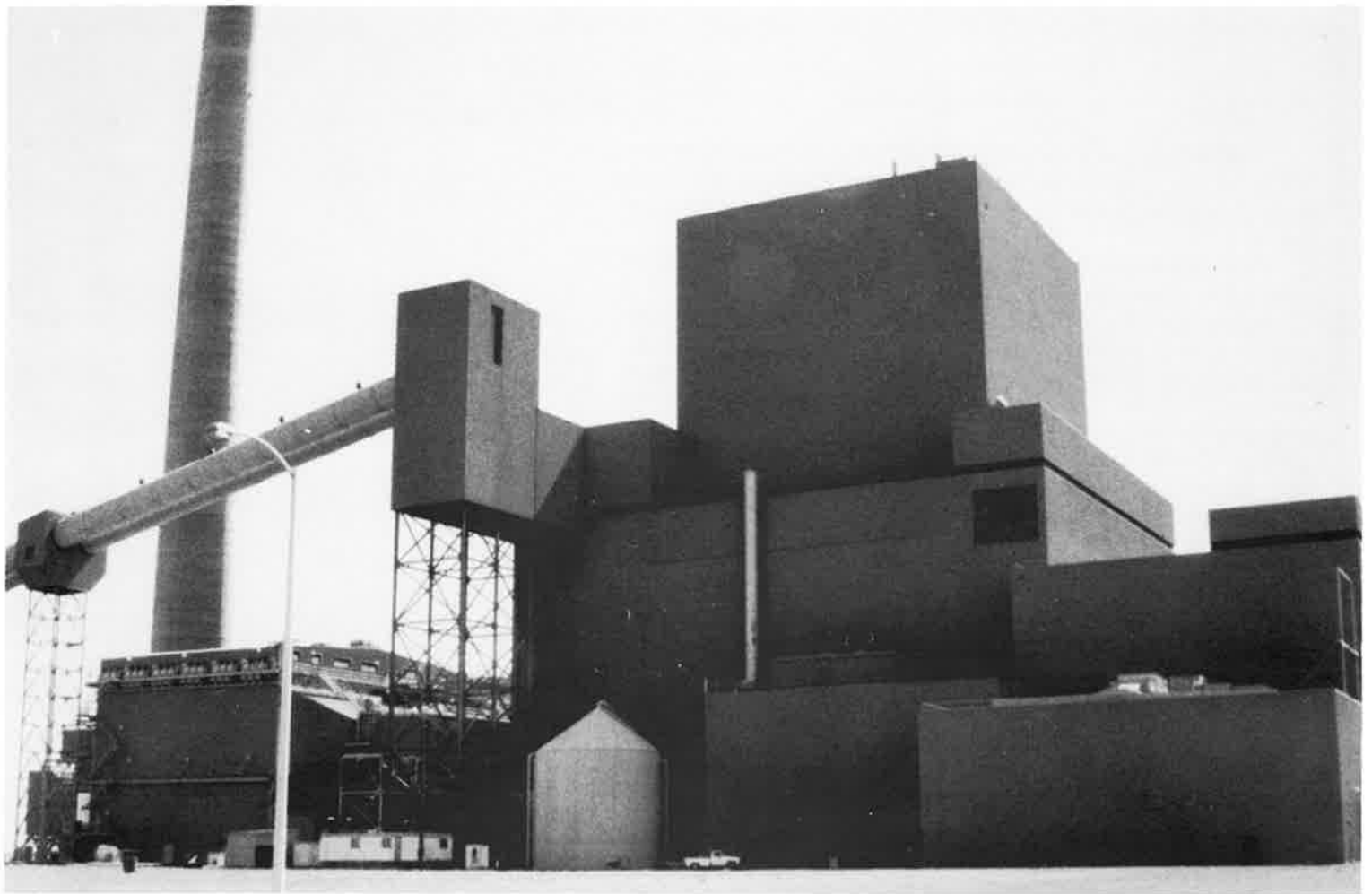


Golden West Mobile Homes of Albany is a leading builder of manufactured housing, an important part of Oregon's home building industry. Golden West's homes are built on their metal frames, from start to finish, under one roof.



**Codes should be reasonable, necessary, and practical.
That's where they should stop.**

Greg Strombeck
Assistant Administrator



Boardman's huge coal-fired power plant. This building is so large that existing codes were not sufficient to cover its construction. (Note the white pickup near the center of the building.) Cooperation among the builders, the operating partners, and the Building Codes Agency produced a unique building. The operating partners are Portland General Electric, Idaho Power, Pacific Northwest Generation, and San Diego Gas and Electric.



Above: the control room is much the same as would be seen in other modern power-producing facilities.



Left: one of the huge generators. To gain an idea of the scale: the door to the left of the generator is standard size.

What is Regulation?

Here we go again: the conventional wisdom for the past decade or so has been that regulation is bad for business. But as we have already seen, conventional wisdom isn't always to be trusted!

The truth is that it would be safe to say that good regulation can be good business.

In the case of building codes, good regulation is uniform administration of uniform codes. Under such a system, each builder has to learn and follow only one set of codes. The immediate advantage of this is obvious: if Oregon uniformly enforces the Uniform Building Code, any builder qualified to work within the state can build in any part of Oregon without having to deal with varying interpretations of the code.

A regulatory agency is, in effect, "on the way or in the way." That is, it can be a stepping stone to efficient business, helping to make things happen—or it can stand in the way. When a regulatory agency is purely regulatory, it is in the way.

The best regulations are simple, reasonable, and necessary. The best regulatory agency leads the way in research and revision. The best regulatory agency helps to solve problems, not create them. The best regulatory agency is, in fact, a developmental agency dedicated to serving the public through helping the businesses it regulates to progress...progress quickly and safely.

Building permits which take weeks to obtain because of the various levels of bureaucracy they must weave through are regulation at its worst. Building permits which are granted quickly after a uniform application of uniform rules are regulation at its best.

The use of "state of the art" materials which have been tested and approved by a qualified laboratory and recognized by a progressive regulatory agency represents developmental regulation. Delaying the use of new materials because the regulatory agency has not investigated the testing laboratory or has not examined the materials is regulation at its worst—obstructive and costly.

In short, economic development depends on progressive and active regulation. Regulatory agencies which simply react to each new crisis are in the way. They are preventing progress and allowing the crisis to occur. Each change under such a system is a bandaid or splint, a mere shoring up. There can be no positive plan under such a system.

Frankly, Oregon's building codes were just such an obstruction—or, rather, the way in which they were administered.

But that is becoming more and more a part of the past.

Today, the Building Codes Agency interacts with a wide variety of bodies and a great many people...on a daily basis. Figures 15 and 16 give an indication of the scope of activity the BCA engages in.

Every government body has its interactions on the agency level. The Building Codes Agency must also interact on a regular basis with various groups and agencies on the state level. By the nature of the codes, the Agency also regularly works with the Federal government and national groups. And because of this national involvement (and the element of economic development inherent in building codes regulations), the Agency also has a substantial interaction with international organizations and

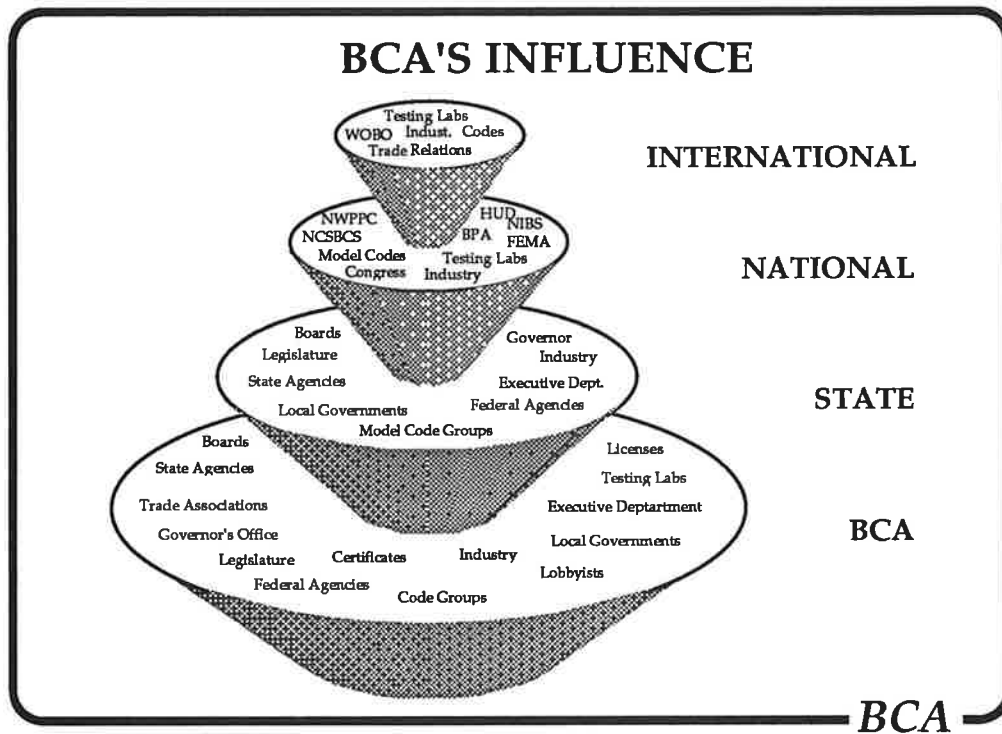


Figure 15

BCA'S INFLUENCE: KEY

International Level

- World Organization of Building Officials (WOBO)
- Testing Labs
- Underwriters Laboratories
- Canadian Standards

Association

- International Codes
- Industry
- Trade Relations
- Canada
- Germany
- Ghana
- Japan
- Korea
- New Zealand
- Sweden

National Level

- Department of Housing and Urban Development (HUD)
- Congress
- Testing Labs
- Industry
- Model Code Groups
- American Society of Mechanical Engineers (ASME)
- Building Officials and Code Administrators (BOCA)
- International Association of Plumbing and Mechanical Officials (IAPMO)
- International Conference of Building Officials (ICBO)
- National Fire Protection Association (NFPA)
- Recreational Vehicle Industry Association (RVIA)
- Southern Building Codes Congress International (SBCCI)
- National Conference of States on Building Codes and Standards (NCSBCS)
- National Institute of Building Science (NIBS)
- Bonneville Power Administration (BPA)
- Northwest Power Planning Council (NWPPC)
- Federal Emergency Management Administration (FEMA)

State Level

- Boards
- State Agencies
- Oregon State Fire Marshal
- Construction Contractors Board
- Housing Agency
- Real Estate Agency
- Economic Development
- Oregon Department of Energy
- Bureau of Labor
- Board of Architect Examiners
- Board of Engineering Examiners
- Workers' Compensation Board, APD
- Legislature
- Industry
- Federal Agencies
- Federal Emergency Management Administration (FEMA)
- Department of Housing and Urban Development (HUD)
- Governor
- Executive Department
- Local Governments
- Model Code Groups

Building Codes Agency Level

- Boards
- Industry
- Legislature
- State Agencies
- Local Governments
- Licenses
- Certificates
- Testing Labs
- Executive Department
- Governor's Office
- Code Groups
- Federal Agencies
- Lobbyists
- Trade Associations

BCA

Figure 16



Building and rebuilding are an ever-present part of the urban reality. Portland's downtown continues its growth and change.

foreign governments. An agency with such responsibilities must be a force for constructive change.

Today's BCA is a body which wants to be a strong player in economic development. Today's BCA wants to be an active partner in providing jobs, safety, accessibility, practicality, growth, and livability. And the agency wants to help do all this without losing what Oregon is now. A better Oregon is an Oregon which grows in line with its traditions—innovation, livability, beauty, variety, friendliness, and leadership

Today, Oregon's Building Codes Agency is a progressive organization which is involved in:

education;

the systematic development of policy and law which will benefit the people of Oregon, the building industry, and business in general;

the promotion of economic development;

the promotion of public safety;

the promotion of energy-efficient homes and businesses;

the promotion of accessibility for all citizens and visitors;

the promotion of a clean and safe environment;

the improvement of the quality of life for all Oregonians.

Oregon's present Building Codes Agency is moving toward becoming an active, progressive, developmental body which safeguards life, property, and health while responding quickly to the public.

It is moving toward becoming an agency which will aid in the development of a system of statewide uniform administration of the Uniform Building Code.

It is moving toward becoming an agency which will carry on

the Oregon legacy by being a national leader in the area of creating a uniform administration on a national level.

It is growing in its mission and in its means of carrying out its mission. This is because growth is both necessary and proper—even in a state like Oregon, which boasts a unique quality of life and a unique style. What the BCA wants is not growth for growth's sake—the agency (as a body and as individuals) wants growth for the sake of the public.

Because, in the final analysis, the most important element of all government is serving the people. *Serving*, not obstructing or suppressing. *Serving*, not making them subject to unnecessary and unreasonable rules. *Serving people*, not the rules of the agency.

In the final analysis, the people of Oregon are the mission of the Building Codes Agency.

Helping them to be happy, safe, and secure.

Helping to prevent disaster, not merely reacting in the face of crisis.

In the end, it's all very simple.



More Portland high-rise construction.

Administration of building codes in Oregon is aided by eight State boards who deal with specialty areas. They offer advice and counsel to the Agency, as well as working with it to provide smooth and fair administration. Members of four of these boards are seen at work below.



Energy Conservation Board (October 10, 1989). Left to Right: Ted Argo, Robert Hall, John Reynolds, Rodger Bekooy (Chair).

Certification and Training Advisory Board (October 11, 1989). Left to Right: James Hagerman, Gene Frederickson, Frank Hledik, Roxie McGrath (BCA Communications Specialist), Jennifer Keller, Ray Kerridge (Chair).



Manufactured Structures and Parks Advisory Board (October 25, 1989). Lee Darrel, BCA Assistant Administrator (left, standing) swears in returning member Dave Diamond (center, standing) and new member Wilbert Russell (right, standing). Seated are (left to right): Patrick Lewis, Neil G. Peterson (Chair), Donald J. Nelson.



Electrical Board (October 12, 1989). Left to Right: Roxie McGrath (BCA Communications Specialist), Junior Owings, Greg Teeple (Chair), Francis Marta, Jim Kelley, Paul Smith, Les Williamson.



Appendix A

A Short History of Building Codes

Codes are, of course, laws. In fact, the earliest known compilation of laws is generally referred to as "The Code of Hammurabi."

Hammurabi was an ancient king of the east who was an emperor in "The Land of the Two Rivers," the fertile crescent produced in the valley of the Tigris and Euphrates Rivers. This area is best known as Mesopotamia. It produced the first civilizations, hundreds of years before the rise of Egypt. Here were Ur, Sumer, Akkadia, and—eventually—Babylon.

The first laws were passed on by oral tradition, as was all other information. From this custom rose the ancient myths of "lawgivers," an almost universal cultural legend in which those who wrote the laws—or received them from the gods—were venerated almost as much as the laws themselves.

The development of writing saw the next significant step in law. Inscribed on wood, stone, or metal—durable materials—the laws themselves took on the property of the medium on which they were inscribed: they were permanent and solid. This feeling came from the fact that most people were illiterate. Writing was the province of the priests and rulers, all of whom were divinely ordained. Thus, writing itself was sacred, and what was written was transcendent. The written laws were therefore moral imperatives.



Oregon's first European-style building was Fort Clatsop, built by the Lewis and Clark expedition in 1805 as a winter shelter. It was abandoned the following year when the expedition returned east. This reproduction (based on a sketch in an expedition journal) was built in 1955 on, so far as can be determined, the original site. Fort Clatsop National Memorial is located off U. S. Highway 101 on Alternate 101, west of Astoria.



The Jason Lee House in Salem, an historic structure still standing—and still safe. The home is located in the museum complex off south 12th Street. This was the second site of the Lee Mission. The first site, north of Salem, was abandoned.



Not all of Oregon's towns have survived. Richmond, in central Oregon, stands as a monument to our history. Richmond, almost a total ghost town, is located not far off State Route 207 in Wheeler County.

Hammurabi collected the laws of his realm, inscribed them on stone, and set them up in public for all the people to see. The law was made the property of the people. While fragments of earlier Sumerian and Akkadian laws have survived on tablets, the Code of Hammurabi, the first extensive popular codification of law, has survived nearly intact (it was found in 1901).

All this is important because it emphasizes that even 4,000 years ago building codes were written into the law to protect the people. These six sections read:

- 228: *If a builder build a house for a man and complete it, that man shall pay him two shekels of silver per sar* of house as his wage.*
- 229: *If a builder has built a house for a man and his work is not strong, and if the house he has built falls in and kills the householder, that builder shall be slain.*
- 230: *If the child of the householder be killed, the child of that builder shall be slain.*
- 231: *If the slave of the householder be killed, he shall give slave for slave to the householder.*
- 232: *If goods have been destroyed, he shall replace all that has been destroyed: and because the house was not made strong, and it has fallen in, he shall restore the fallen house out of his own material.*
- 233: *If a builder has built a house for a man, and his work is not done properly and a wall shifts, then that builder shall make that wall good with his own silver.*

*An ancient unit of measurement. As far as can be determined, it is approximately 12 square feet.

As translated in *Building Department Administration*, Robert E. O'Bannon, International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601, Second Edition, 1989, p. 1/7.

Jacksonville's Nunan Mansion, built in 1892, is also known as The Catalog House. This is because the house was built from a kit ordered from a catalog. While the original prefabricated structure was embellished, the majority of the structure is as ordered.



As may be easily seen, these early laws incorporated the concept of the *lex talionis*: "an eye for an eye" or "let the punishment fit the crime."

Still, the intent of the laws was to protect the weak from the strong, to provide guidelines under which civilized human beings should live. But even here we can see the seed of the history of building codes in particular: they are written in reaction to tragedy.

This point is well illustrated by the burning of Rome in 64 A.D. It is true that this was almost certainly a manufactured tragedy, as there is evidence that the Emperor Nero had the fire deliberately set. The Rome of his day was a collection of haphazardly-placed shanties and shelters—mostly of wood or mud brick—crowded around the central stone official buildings. Sanitation was nonexistent, and the entire city was an accident waiting to happen.

Nero had dreamed of a new Rome, built under strict laws and fully planned to reveal his own genius and glory. The principal barrier to making his planned city a reality was the bothersome fact that Rome already existed. Conveniently, much of it burned.

Nero's new Rome was the world's first known fully planned city, and it was built with full attention to (ironically) fire prevention, to sanitation, to public safety, and to overall practicality. From 64 A.D. until the fall of Rome, building was strictly controlled and inspected.

Also from that time on, the pattern was firmly set: first, tragedy; second, laws to prevent another tragedy.

Another infamous fire, the Great Fire of London in 1666, also resulted in the imposition of building codes. It must be noted, however, that the "London Building Act" was not finally passed by Parliament until 1668. By that time, much of London had been rebuilt in the same dangerous manner as before. In any case, the new codes applied only within the boundaries of the ancient City of London, and the vast majority of the total city was fair game for whomever wished to throw up a building.

Architect Christopher Wren, a strong advocate of a planned new city and strict building codes, was greatly disappointed. He did, however, make certain the new buildings he designed were constructed of noncombustible materials and built strongly. His vision was totally vindicated to modern eyes: almost 275 years later, St. Paul's Cathedral, his masterwork, survived nearly undamaged in the midst of the carnage and fires wrought by the Nazi blitz. Indeed, the sight of the Dome of St. Paul's rising undamaged from the smoke and flames served as a symbol of the strength and will of the British peoples.

Accounts of building codes in America begin with colonial laws forbidding the construction of unsafe chimneys. George Washington and Thomas Jefferson contributed ideas to the informal code under which the planned city of Washington was built. By 1862, a set of laws which we would recognize as a building code existed in the United States.

The Chicago Fire of 1871 resulted in a strong set of building codes for that city—partially as a result of pressure from insurance companies, who threatened to cease doing business in Chicago if controls were not imposed.

There was not, however, a uniform set of building codes for the nation. By 1905, the year before the great San Francisco earthquake and fire, the first version of what could be called a "uni-

form building code" was issued by the National Board of Fire Underwriters. In 1927, the Pacific Coast Building Officials Conference issued a suggested uniform code.

Ten years later, another code, based on the 1927 version, was devised and issued as the Recommended Uniform Building Code of the New England Building Officials Conference. This version illustrates two factors: growth in the development of building codes and fragmentation of administration.

Even at this early stage of the development of actual building codes as we know them today, organizations were writing their own codes rather than adopting existing codes. Today, there are three major code development bodies who publish families of building construction codes in the United States:

The Building Officials and Code Administrators International (BOCA)—the National Building Code (formerly the Basic Building Code);

The International Conference of Building Officials (ICBO)—the Uniform Building Code;

The Southern Building Code Congress International (SBCCI)—the Standard Building Code.

Each of these three bodies is influenced by, referenced by, or incorporates other sets of nationally-recognized specialty standards and codes, including (but not limited to):

BOCA National Plumbing Code (formerly the Basic Plumbing Code)

Boiler Code

Elevator Code

National Electrical Code

National Plumbing Code

One and Two Family Dwelling Code

Standard Plumbing Code

Uniform Fire Code

Uniform Fire Code Standards

Uniform Mechanical Code

Uniform Plumbing Code.

There are, in fact, in excess of 160 families of codes in use in the United States.

A fourth major code development body no longer develops building codes. The National Board of Fire Underwriters (now known as the American Insurance Association) developed and published the National Building Code. This was the code first issued in 1905. When this code was withdrawn in 1980, BOCA

obtained permission to use "National Building Code" as a title for their existing codes.

The final force in this area is the Federal Department of Housing and Urban Development (HUD). Since 1974, this governmental body has been responsible for the development and administration of codes for manufactured housing.

Development of yet another national uniform model building code is not anticipated. Each of the existing codes is equal to the others. So the modern problem with building construction codes lies not in the codes themselves, but in the manner of their administration.

Just as each organization or jurisdiction in the past chose to write their own codes rather than adopt existing codes, today we have a situation in which each administrative jurisdiction enforces its own interpretation of the uniform codes. This is partly an attempt to retain local control, partly a result of jurisdictional disputes and rights, and partly a result of poor planning and poor administration at the top. It also reflects poor (or nonexistent) training and certification practices.

The proper future of building construction codes in America lies in the development of true uniformity. Uniform administration of uniform codes on a national basis will create a situation in which building contractors can work in any city, county, or state in the nation without having to learn a new set of codes and a new set of interpretations for each jurisdiction. Uniform administration of uniform codes will create a situation in which the public may be assured that each structure they enter is safe, accessible, energy-efficient.

In short, uniform administration of uniform codes will take us full circle. It will return us to Hammurabi's intent in setting up his collected laws in public. It will return us to the intent of those first laws.

Because that intent was, of course: protect the people.



The Pittock Mansion overlooks Portland from a site in the west hills. The home, completed in 1914, was built by Henry Lewis Pittock, who was owner/publisher of the Portland Oregonian from 1860 until his death in 1919. The Mansion has belonged to the City of Portland since 1964, and is open to the public.

Appendix B

Key to Figure 14

In one sense, building codes could be said to have an influence on every aspect of life in the state, as the structures which serve as our homes, our workplaces, and the centers of our services are dependent on proper administration of building codes. In addition, goods and services which help us maintain our lives and our livelihoods are also dependent on proper application of codes.

In a conservative sense, however, there are certain areas which are unmistakably connected to administration of building codes. These are the areas which are included in Figure 14 on page 19.

The employment and payroll figures given are drawn from the State of Oregon Employment Division publication *Oregon Covered Employment and Payrolls by Industry and County 1987*. They are the most recent figures available as of the publication of this brochure.

The breakdown of numbers given in column one of Figure 14 is as follows:

Building Construction: the 29,036 figure given was the number of persons employed in building construction in Oregon (the annual average for 1987).

Manufacturing (durable goods): the breakdown of employment here (the annual average for 1987 in each case) is as follows:

Lumber and wood products	68,050
Furniture and Fixtures	2,513
Stone, Clay & Glass Products	3,559
Primary Metal Industries	9,305
Fabricated Metal Products	3,333
including:	
Hand and Edge Tools	303
Hardware	258
Heating Equipment	215
Fabricated Structural	857
Metal Doors, Sash, Trim	934
Architectural Metal	182
Prefabricated Metal Buildings	61
Valves and Pipe Fittings	194
Pipe and Fittings	121
Fabricated Metal Products	308
Electric and Electronic	
Residential Lighting	18
Total	86,878

Electric, Gas, and Sanitary Services for the state employed an annual average of 8,777 persons in 1987.

Wholesale Trade annual employment in 1987 totaled 7,980 persons who were directly influenced by building codes, including:

Furniture	414
Home Furnishings	924
Lumber, Plywood, Millwork	3,654
Construction Materials	1,360
Hardware	1,186
Warm Air Heating and Air Conditioning	442

Similarly, 14,425 persons (on an annual average) employed in the Retail Trades were directly influenced by building codes, including:

Building Material and Garden Supplies	6,802
Furniture and Home Furnishings	7,623

Finally, the number of persons employed on an annual average in the Finance, Insurance, and Real Estate areas is heavily dependent on building codes administration, as each of these areas depends on home loans, business loans, and the economic health of workers and residents. The 49,095 persons influenced in these areas include:

Banking	14,747
Credit Agencies Other Than Banks	9,050
Title Insurance	1,262
Fire, Marine, and Casualty Insurance	5,485
Insurance Agents Brokers and Service	6,065
Real Estate	12,486
Total	196,191

These figures do not include the persons employed directly in housing for the Federal government, Building Codes Agency employees of the State of Oregon, or employees of local government who are employed in housing and building code administration. They were conservatively selected from the overall employment breakdown in Oregon.

The total employment figures for each sector involved are given in the second column of the figure. These are provided for clarity and comparison.

The third column gives the total Oregon 1987 Payroll for each sector listed. The breakdown on these figures is as follows:

Building Construction: \$590,634,314.

Manufacturing (durable goods): \$2,124,012,807, including:

Lumber and Wood Products	1,583,204,519
Furniture and Fixtures	45,354,638
Stone, Clay, & Glass Products	86,413,237
Primary Metal Industries	281,182,689
Fabricated Metal Products	127,556,511
Including:	
Hand and Edge tools	6,251,019
Hardware	4,884,540

Heating Equipment	3,840,488
Fabricated Structural	19,281,640
Metal Doors, Sash, Trim	15,579,982
Architectural Metal	3,537,981
Prefabricated Metal Buildings	806,438
Valves and Pipe Fittings	4,825,485
Pipe and Fittings	3,002,249
Fabricated and Electronic Residential Lighting	301,213

Electric, Gas, and Sanitary Services for the state accounted for a payroll of \$296,671,283.

Influnced wholesale Trade payroll for 1987 was \$221,229,276, including:

Furniture	9,408,853
Home Furnishings	17,669,676
Lumber, Plywood, Millwork	125,556,780
Construction Materials	30,398,288
Hardware	27,513,680
Warm Air Heating and Air Condition'g	10,681,999

Retail Trade payroll influenced directly by building codes in 1987 totaled \$216,300,661, including:

Building Material and Garden Supplies	104,730,675
Furniture and Home Furnishings	111,569,986

The payroll influenced by building codes in the field of Finance, Insurance, and Real Estate in 1987 totaled \$916,883,951. This includes:

Banking	267,098,132
Credit Agencies Other Than Banks	188,987,473
Title Insurance	24,766,318
Fire, Marine, and Casualty Insurance	133,664,016
Insurance Agents Brokers and Services	137,157,828
Real Estate	165,209,261

Total **\$4,365,732,292**

Again, these figures do not include the payroll for persons employed directly in housing for the Federal government, Building Codes Agency employees of the State of Oregon, or employees of local government who are employed in housing and building code administration.

The total payroll in Oregon in 1987 was \$20,312,442,981. Note that these figures are for Oregon payroll. That means they do not take into account other means of income which increase the monetary flow: self employment, investments, etc. The payroll figures do, however, represent the majority of Oregon workers.

Given the sphere of influence exerted by the Building Codes Agency—it influences approximately 18.24% of Oregon employment and approximately 21.49% of Oregon payroll—the intensity of the effect of any decision made by the Agency becomes obvious. Minor adjustments in administration might result in major disruptions in the economy. What might appear to be a minor miscalcula-

tion could easily have major repercussions. Therefore, streamlining and improving the process of administration is of utmost importance.

While it is impossible to eliminate the possibility of error, it is feasible to reduce the possibility to its lowest level. Therefore, two major errors must be avoided at the outset: we must recognize the consequences of error before we allow it to occur; we must not underestimate the importance of the building construction industry to Oregon's economy and well being.

One of the goals of the proposed change in codes administration is to insure reasonable service and parity to all Oregon citizens. That is, the change to local administration would be designed to take into account the fact that basic needs must be met in all areas of the state, regardless of population levels. Even in more sparsely populated areas, the goals must remain the same:

Save lives.

Protect property.

Protect health.

Promote energy conservation.

Develop free access to all buildings for all citizens.

Promote economic development.

Since we have adopted a model code, we should adopt a uniform criteria for inspectors—uniform certification. We need to educate all inspectors.

Dan Smith
Administrator



State of Oregon
Building Codes Agency
1535 Edgewater NW
Salem, Oregon 97310
(503) 373-1217

November 1989