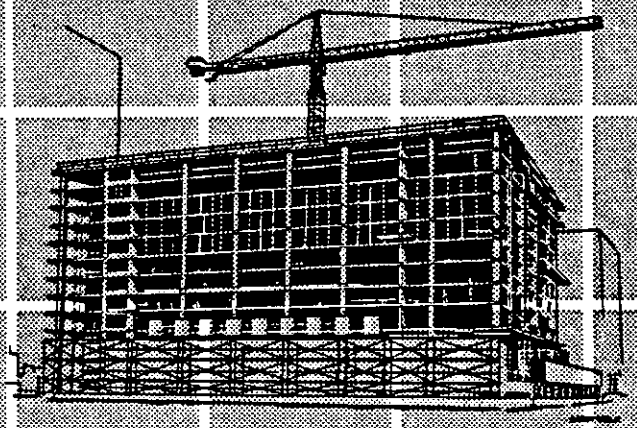
TECHNICAL PUBLICATION NO. 105

CODE ENFORCEMENT: SCOPE AND EXTENT OF PROBLEM AND RECOMMENDATIONS FOR SOLUTIONS

This research project was sponsored by
The Building Construction Industry Advisory Committee under a grant from the
State of Florida Department of Education



Professor Wilson C. Barnes, AIA
Project Director

Professor Jose D. Mitrani, PE
Co-Project Director

Florida International University
Department of Construction Management
Miami, Florida
1992

PROBLEMS IN BUILDING CODE ENFORCEMENT

-LOCAL AMENDMENTS TO MODEL CODES-

-UNIFORMITY OF ENFORCEMENT AND CERTIFICATION OF PERSONNEL-

Grant 89-3

Principal Investigator
Professor Wilson C. Barnes, AIA

Co-Investigator
Professor Jose D. Mitrani, P. E.

Research Associate
John M. Dye, CGC

Department of Construction Management
Florida International University

December 31, 1991

This research project was sponsored by the
Building Construction Industry Advisory Committee
under a grant from
The State of Florida Department of Education

ACKNOWLEDGEMENTS

This report was made possible through the cooperation of many individuals in the construction industry both inside and outside of the University. Fundamental work in research and writing was done by John M. Dye, CGC, Research Associate. Hundreds of Building Officials, Architects, and Engineers across the State of Florida also made meaningful contributions through their participation in the written surveys and personal interviews. In addition, other colleagues in other states and agencies throughout the nation gave generously of their time to help us understand what was happening outside of Florida. Individuals deserving special mention include:

Kate McQueen
Manager of Technical Services
National Conference of States on
Building Codes and Standards

Cos Tornese
Director of Building and Zoning
Broward County, Florida

Dr. Brisbane Brown
Executive Secretary
Building Construction Industry
Advisory Committee
State of Florida

Ms. Patty Wood
Secretary
Building Construction Industry
Advisory Committee
State of Florida

Gregory Ferrone
Graduate Student
Department of Construction Management
Florida International University

Joseph Holland
Project Monitor
Building Construction Industry
Advisory Committee
State of Florida

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Studies done at the Institute for Building Sciences at Florida A & M University (FAMU) delineated five basic problem areas central to more effective regulation of building construction in the State of Florida. Research conducted for this study addressed two of these issues in more detail:

local amendments to adopted building codes; and,

the relationship of uncertified building officials to non-uniform code enforcement.

The research was conducted through a review of written material on the general subject of code enforcement and code regulation reform; through a statewide questionnaire survey of both building officials and design professionals; through personal interviews of random selected building officials and design professionals; through contact with other State agencies; and through contact with, and survey of, code and building officials in other states.

The results indicated that, while local amendments have been sometimes used improperly or sometimes used un-necessarily, that they are a useful medium to accommodate the great diversity in Florida's environment and in its political subdivisions. The research also indicated that formal training and certification of code enforcement personnel is desirable.

While beyond the scope of this work, it is apparent that a hard single code state-wide with amendment authority at the state level is certain to require new staffing and may be politically unpalatable. A reasonable compromise between that and the present condition would be a more tightly prescribed local amendment authority. Similarly, if training and certification of code

enforcement personnel is to improve the general effectiveness of the regulation process, the key to such improvement is the degree of looseness or tightness of the process by which we train and certify the competency of personnel in the field.

Recommendations have been developed for both of the issues examined in this study. Implementation of the recommendations will require legislative action that may need to be predicated on additional detail and coordination. It must be emphasized that all five essential elements of code reform delineated in the FAMU study should be fully addressed with recommendations and proposals for implementation as a total code reform package.

The research also determined that the architects and engineers, as primary consumers of a "product", perceive only a limited relationship between certification of code enforcement personnel and uniformity of code enforcement. The researchers attribute this lack of correlation to the fact that there are no minimum state wide standards for training, experience, education or professional competence for Building Officials, Plan Reviewers, and Inspectors; no uniform review or appeal procedures of their decisions leading to documentation of code interpretation; and no state agency charged with disseminating consistent interpretation of articles in the building code. The level of certification and professional competence that has been achieved by individuals or building departments has been done voluntarily or mandated by local jurisdictions. The end product is not the result of consistently applied standards that have been examined and evaluated as best suited for the construction industry throughout the state.

Recommendations

The following recommendations flow from the results of the study.

LOCAL AMENDMENTS to the adopted building codes should be permitted subject to the following:

They enhance provisions of adopted building codes where such enhancement is in the interest of improved public safety or in response to local conditions;

They are not used to prescribe proprietary products or procedures in such a manner as to restrict free enterprise;

They are reviewed for relevancy by jurisdictions on periodic adoption of model code revisions;

Every building department or state agency involved with construction publishes documents containing all local amendments in the jurisdiction, available to the general public at local building department offices.

The local amendments are adopted through normal home rule procedures which includes a review by members of the construction industry and the general public similar to the Palm Beach County Building Code Advisory Board.

CERTIFICATION OF CODE ENFORCERS should be required in accordance with the following:

State-wide minimum levels of training, experience, education, and competence should be established for code enforcement personnel;

A state-wide training and testing program should be defined and implemented. The training and testing program should include:

An initial qualification test with a minimum passing grade (current Florida registered design professionals exempted) which is administered to all new code enforcement applicants. Existing code enforcement personnel would be permitted a grace period.

A continuing education program with a mix of state mandated and local curriculum with competency testing.

State-wide reciprocity of certifications and CEU's.

The following additional recommendations reinforce conclusions and recommendations of the FAMU study and are fundamental to meaningful success of any code enforcement reform program.

STATE WIDE BUILDING CODES

The use of any one of four building codes designated by the state is currently mandated for all jurisdictions and agencies having building departments. Local jurisdictions and state agencies should have one year from date of publication to enact revisions made to the model code they have adopted.

Failure of local jurisdictions to act within the prescribed one year should trigger an automatic application of the current revised model code provisions to that jurisdiction or agency. Further, such failure and automatic application would void any local amendments for that agency or jurisdiction.

COMMUNICATION IMPROVEMENT

Local jurisdictions should be required to increase awareness of currently applicable codes and standards by providing a users guide for design professionals, developers, and the public in general. Such users guides should incorporate a listing of all applicable codes, standards, local amendments, and procedures within their respective jurisdictions.

Coordinated plan review should be the norm within local jurisdictions. Review and approval of plans by the Fire Marshall or his authorized representative is an integral part of this process. Legislation establishing the state-wide code provisions could easily include

language requiring review and approval by any agency with "Certificate of Occupancy" type authority or with the authority to require alterations to new or existing structures.

PROJECTION

The results of this study help us to focus more clearly on certain issues in the construction industry. These issues, which are inter-related and controversial, impact both practitioners and regulators. If we are to have a smoothly functioning system of control over construction activity in the State of Florida we must achieve a proper balance between uniform establishment and enforcement of a common set of standards, and freedom for industry practitioners to exercise beneficial initiative within the framework of those standards.

The Legislature has taken a strong step toward the uniform establishment and enforcement of a common set of standards. It is apparent that the degree of looseness which characterizes that current framework of establishment and enforcement has not achieved a true level playing field for the industry practitioners. Neither is it achieving ease of implementation for the regulators. The more desirable condition of truly common standards and enforcement is obtainable. Once in place, such a condition will make both industry and practitioners more effective with the end benefits accruing to the citizenry.

The legislature should update the statutes mandating the use of designated building codes. The revised laws should incorporate the recommendations of this study pertaining to local amendments along with the basic recommendations of the FAMU study on model codes and communication improvement. To complement this revision of the existing statutes, new legislation should be enacted requiring that code enforcement personnel be certified and kept current through a state-wide process of competency testing and continuing education.

The detailed agenda for certification and continuing education should be developed by individuals knowledgeable of similar programs in other states and of the problems peculiar to the State

of Florida. Such an effort is a logical follow-on to this study.

Overall, the proposed tightening of requirements must be done with due concern against over-tightening. It must however, be done with a determination to achieve that true balance between regulators and practitioners which is described above.

One major side effect of implementing these proposals should be a long term decrease in construction related litigation. Ninety-five percent of construction industry disputes are related to design documentation. Designers' troubles begin with the very issues of unclear beginnings referred to in the FAMU studies and are compounded by the uncoordinated reviews and subjective inspections these proposals partially seek to remedy.

INTRODUCTION

Commencing in 1974 the State of Florida mandated that jurisdictions with building departments and state agencies which regulate building construction adopt and enforce one of four building codes. With the exception of Broward and Dade counties and the Disney World Complex, most of the jurisdictions and state agencies have adopted the Standard Building Code (SBC). This model code is promulgated by the Southern Building Code Congress International (SBCCI), an organization based in Birmingham, Alabama. The membership of the organization is composed of material suppliers, commercial and construction trade groups (associate members), architects, engineers, other design professionals (professional members), and building code enforcement personnel from states and local governments, "members". While revisions to the code can be proposed by any of these, voting rights for changes are vested only in "members".

Broward and Dade counties have adopted separate versions of the South Florida Building Code (SFBC) and the Disney World Complex, due to the peculiar nature of many of its structures, is covered by the EPCOT code. As of May 1991, 3% of the counties and 5% of the cities surveyed by the Auditor General had not adopted any building code.

The legislation setting forth the requirement for the adoption of a building code placed the administration of the program under the Department of Community Affairs. In 1987 the Institute for Building Sciences at Florida A&M University, under contract to that Department, published four reports examining the status of the building construction regulations in the State of Florida. The fourth and final report summarized the findings of the first three and identified five problem areas:

UNCLEAR BEGINNINGS. At the outset of a project it is sometimes difficult for the design professionals (architects and engineers) or the developers to know which "...codes, amendments,

rules, regulations and other requirements..." will apply to their project.

LOCAL AMENDMENTS ADD TO THE COMPLEXITY. With the exception of Broward and Dade counties each jurisdiction or state agency with a separate building department may amend the adopted code as they see fit. Consequently, instead of having a state wide code, Florida has in essence several hundred building codes, most of which are based upon a single model.

LACK OF PROFESSIONALISM. The State of Florida does not require that individuals enforcing the building code be trained or certified. Local jurisdictions are free to determine the suitability of any individual for the positions of Building Official, Plan Reviewer, or Inspector.

CUMBERSOME APPEALS PROCESS. The appeals process by which a designer or developer seeks a review of a controversial interpretation of an adopted building code and local amendments by a plans reviewer or inspector is determined by local jurisdictions. In some jurisdictions there is no formalized process. In other instances, where there is a difference in interpretation of a state regulation, there is no state authority to arbitrate the matter.

SERVICE TO MORE THAN ONE MASTER. The model building code is not the only code covering certain aspects of design and construction. There are mechanical, electrical, fire prevention and life safety, energy, and handicapped access codes which overlap. The Building Official is not the final authority in certain of these disciplines. Absent a "spirit of cooperation" between other cognizant officials it is possible to design and build a structure that passes all parts of the SBC, receives a certificate of occupancy from the building department, but that cannot be occupied because of provisions of the fire prevention code.

In 1990 the Building Construction Industry Advisory Committee (BCIAC) contracted with Florida International University to examine parts of two of the problem areas determined by the FAMU study effort, the use of local amendments and the lack of professionalism of code enforcement personnel. The specific goals set forth for the study were:

Investigate the widespread use of local amendments to the model building codes, their necessity, and the problems caused by their adoption.

Investigate the relationship between uncertified Building Officials and non-uniform code enforcement.

Make detailed recommendations for revisions in the areas of adoption of local amendments and Building Official Certification.

Disseminate the data collected and the recommendations to various governmental and trade organizations.

The body of this report details the research that was conducted to fulfill the assignment.

METHODOLOGY

Literature search

The initial literature search centered on the work that had been done by the Institute for Building Sciences. Four reports were issued in May of 1987 entitled "Building Construction Regulations in Florida". The first report provided an overview of the experiences of other states in the area of building code reform with detailed examples of the projects and codes applications in New Jersey and Virginia. The second report presented the result of a series of roundtable discussions held throughout the State of Florida concentrating on perceived problems in the area of building codes and code enforcement. The participants in these discussions were contractors, engineers, architects, and code enforcement personnel such as building officials, inspectors and in one case, the fire marshall. The third report contained a comparison of the two building codes used in the state (excepting Disney World), the Standard Building Code (SBC) and the South Florida Building Code (SFBC). The report also included comments from interviews with selected Building Officials and developers. The final report summarized the findings by defining problem areas and made recommendations for code reform action.

The research then focused on a search of government and industry publications, trade journals, and magazines with articles written in the five year period prior to this report and concentrating on the two study areas: local amendments and lack of professionalism. The objective of the literary search was to determine if these problems were prevalent and, if so, what was written about them on a nationwide basis.

The thrust of many articles was that adherence to a building code that was not continuously reviewed and updated to allow new materials or which was subject to local amendments that were non-

technical in nature would only serve to increase the cost of construction without adding to the safety of the structure. As an example, local amendments in one area may require the use of electrical conduit in single family dwellings where other jurisdictions do not.

Roger Thompson, writing in the August 1986 edition of "Nation's Business," stated that antiquated codes and those with non-technical amendments added approximately 20-25% to the cost of construction of a new home. Data supporting the estimate were not provided. In a paper presented at an AIA conference in 1988, Charles Hoyt stated the position that architecture and material sciences are developing more rapidly than codes are evolving. Adherence to the outdated technology reflected in the model codes is hindering construction and increasing costs. Also in 1988, McLeister wrote an article appearing in the April 1988 edition of the "Professional Builder" which set forth information on a recommendation by the National Association of Home Builders (NAHB) providing for the adoption of model codes by administrative means. By avoiding a legislative act the possibility of avoiding local amendments would be increased.

That same year Clifford S. Harvey wrote an article appearing in the "Architectural Record" taking code enforcement personnel to task as being too restrictive in their interpretation of certain aspects of the codes. His primary point was that the construction industry can obtain the same results in fire safety with more creative ideas rather than using the exact wording of a code to restrict design.

Post, Nadine, & Korman were the co-authors of an article appearing in "Engineering News Record" in 1989 which discussed the adoption of a model building code. The thrust of the article was that non-uniformity hinders business and that code amendments that are political in nature, rather than technical, should be avoided.

The following year, again in "Engineering News Record",Ichinowski and Memeziz wrote an article describing a Presidential Order that requires adoption of standards for certain classes of federal buildings with respect to seismic design. However it was noted that the particular standards to be adopted were at the discretion of the local administrator. Again in 1990, Stubs & Gordon published an article in "Engineering News Record" examining the lack of action in adoption of a federal standard fire prevention code. They cited the use of local amendments to current codes as one of the reasons they felt that a single federal standard would be desirable.

In addition to the original work done at Florida A&M, two of the more useful publications used in preparing this report were the 1991 edition of "The Directory of Building Codes and Regulations," published by the National Conference of States on Building Codes and Standards, and the "Performance Audit of the Building Code Programs" conducted by the Office of the Auditor General for the State of Florida and published in May of 1991. The "Directory" provided the means by which the investigators were able to contact building departments in other states to determine their work in the area of interest. The Auditor General's report pointed out the seemingly indifferent attitude of the local jurisdictions and state agencies in complying with the minimum standards established by the legislature.

In addition to the periodical search, trade organizations were contacted and requested to provide any literature or source of literature that they knew of concerning difficulties caused by local amendments to a model code or the problem of non-uniform enforcement due to the lack of professional standards for code enforcement personnel. A listing of these organizations is included in Appendix A. Although most of these responded, they did so in the negative and asked that information on the subject discovered in the course of this study be furnished to them.

Survey of Building Departments

The researchers developed a questionnaire that was sent to building departments throughout the State of Florida to provide information on the following subjects:

An overview of department size and work load.

What is the process by which local amendments to the building code are adopted?

What is the perception of Building Officials as to the necessity of local amendments to the adopted building code?

Do Building Officials perceive that architects, developers, and engineers have a problem keeping abreast of local amendments?

What is the level of certification of code enforcement personnel within their department?

A total of 248 copies of the survey were distributed. A cover letter and survey was sent to each member of the Building Officials Association of Florida whose address or title indicated that they were currently employed as a Building Official. A follow up mailing was made to the Building Officials of all counties and other jurisdictions with a population in excess of 10,000 (1980 census) that were missed in the first mailing. Forty-five per cent of the questionnaires were returned. Not all respondents answered all questions and some respondents answered questions using multiple answers where only one was asked for. Some answered with a write-in choice. Data obtained from the incomplete surveys were used for those questions answered; those from multiple responses were attributed to the categories indicated with the assumption that they represented a desire to position the response in between two of the choices allowed. A copy of the survey and tabulated responses is presented in Appendix B.

The survey contained questions with regard to the organization

of each building department. The responses were used to broaden the knowledge of the researchers as to the structure and size of the building departments throughout the state. This allowed development of profiles with respect to personnel, the volume of permits handled annually, and other general information. Using these profiles the researchers could compare answers received from different respondents with similar characteristics to other questions in the survey. A summary of the responses from the departments is presented in Table I.

TABLE I

Summary of Building Department Characteristics

Data Furnished By Building Officials

Item	Respondents Answer	
Building Official a Registered Architect or Engineer?	9.9 % are	
Average Time as Building Official	5.2 years	
Average Number of Inspectors	13.4	
Average Number of Plan Reviewers	2.7	
Are Plan Reviewers & Inspectors	Reviewers	Inspectors
Very Well Qualified	24.7% are	22.9% are
Well Qualified	48.5% are	58.3% are
Qualified	23.7% are	16.7% are
Marginally Qualified	2.1% are	2.1% are
Unqualified	1.0% are	0.% are
Averaged over the last three years		
Plans sets reviewed	1,801	
Permits issued (all disciplines)	5,695	

Table I (Cont.)

Does Fire Marshall participate in plan review and inspections?	89.4% do
Department has a standardized appeal process	93.2% do
Department publishes a user's guide	81.6% do
Formal continuing education	
For inspectors	68.2% have
For plans reviewers	65.0% have

The survey also requested that the building officials briefly describe the method by which local amendments are adopted. The responses generally fell into two groups. By far the majority of responses indicated that amendments could be proposed by anyone in the construction field, i.e., individuals, contractors, developers, design professionals, trade organizations, or material supply firms. Proposed amendments are studied within the department. After departmental review the proposal is sent to a review panel consisting of contractors, trade groups, architects and engineers for further study. If the recommendation passes this process it is formalized and sent to the governing body (city council, board of commissioners, etc.) for approval. If approved it becomes part of the building code within that jurisdiction. A small number of responses indicated that the origination and review process took place totally within the department. The adoption method was still by the governing body. The survey did not differentiate between administrative and technical amendments, which may explain this inconsistency.

The survey also established the Building Official's opinions on certain areas with respect to the building codes and the issue of local amendments. The tabulated responses to these questions

are shown in Table II.

TABLE II

Building Official's Responses on

Code Related Questions

Item	Positive Response
Department has access to current info on statewide codes (handicapped, etc.)	93.2%
Inspectors/Reviewers have no problem interpreting model code	89.8%
Inspectors/Reviewers have no problem keeping up with local amendments	90.0%
Building Code Used	
SBC	76%
SFBC	23%
Other	1%
Number of local amendments	
0-10	71.3%
11-20	11.3%
21-50	7.5%
51-100	7.5%
more than 300	2.4%
Do you favor	
A single statewide building code with provisions for regional differences	74.5%
Approval of local amendments by regional board of building officials	55.4%
Local amendments	62.4%

Both the survey and personal interviews with Building Officials and other members of building departments throughout the state indicated that there is no uniformity in experience or training and no minimum professional standing required for code enforcement personnel. One jurisdiction required no experience at

all in the construction industry; on the job training for both inspectors and plans reviewers. Other jurisdictions were so rigid in their requirement for experience in the construction field that it was obvious that they were only "looking for a few good friends." The requirement for certification by the state is essentially non-existent since, as will be pointed out later in the report, state certification consists of only a print out of those who have paid a fee, have the SBCCI or other certification, and meet minimum time standards of employment in the construction industry.

An attempt was made to correlate the data received by plotting plan sets reviewed against the number of plans reviewers; permits issued against the number of inspectors; first time plan review and inspection failure rate as a function of departmental work load; first time plan review and inspection failure as a function of certified personnel. There was no correlation or trend indicated by the analyses or depicted in any of these graphs.

One possible reason for lack of consistency was the structure of the building departments around the state. In smaller jurisdictions there may be only one full time employee in the building department. Trying to plot plan reviewers against average number of plan sets received becomes meaningless. Similarly for inspectors against numbers of permits issued.

Another possible reason for the lack of correlation was the difference in interpretation of the definition for 1st time plan review or inspection failure by the various respondents. The intent was to determine what per cent of plans made it through the review process without code deficiencies being noted. Similarly, what was the first time inspection failure rate. From personal experience the researchers did not expect the numbers to be very high. The responses ranged from 0% to 99%. The personal interviews indicated that the questions were interpreted

differently by most of the respondents and meaningful data were not created.

Survey of Architects and Engineers

An additional survey form directed to architectural and engineering (A & E) firms was developed to provide answers to the following questions:

A. Do the design professionals have a problem with the use of local amendments to model building codes?

B. Do they object to the use of local amendments to the model code?

C.. Do the architects and engineers perceive that there is a relationship between the uniformity of code enforcement and certification of code enforcement personnel?

The A & E survey (Appendix D) was sent to 251 firms listed in the 1991 Florida's Builders and Contractors Directory, chosen by selecting every sixth organization. Offices in Dade and Broward County were excluded since local amendments to the South Florida Building Code (SFBC) are not permitted and the State does not recognize certification of code enforcement personnel for the SFBC. Thirty surveys were returned as undeliverable due to address changes; 2 were returned unanswered as the firms were not engaged in building construction; leaving a net of 219 for the sample population. Of these ninety-eight, or 45 percent, were returned. Not all firms answered all questions and some firms answered the questions by indicating more than one choice when only one was asked for. Data obtained from those with incomplete surveys were used; those from multiple responses were attributed to both categories with the rationale that the problem posed to the firm was one of resolution and that the simple "yes" or "no" was not appropriate. The tabulated raw data are displayed in Appendix D.

The survey of architectural and engineering firms was designed to elicit a snap shot of the firm as well as the opinions on the fundamental questions of the research. The overview of the size and volume of business conducted by the respondents is shown in Table III. Since the majority of the questions asked allowed a range of values for an answer, the mid point of the range was used for computations except for the lowest and highest ranges allowed. In those cases the values used were the upper most of the low range and least value in the upper range.

TABLE III

Size/Volume of Business of Responding Firms

Item	Average	Most Populous Range
Number of full time architects or engineers	3.5	2-3
Number of other professional personnel	3.3	2-3
Number of secretarial or other support personnel	2.3	2-3
Completed Construction Cost of Projects Averaged over three years	$970,000	$400-700,000

For the firms responding, the aggregate construction cost of completed projects, averaged over the past three years, was $370,250,000.

The survey also drew out the respondents opinions on the functions and the personnel of the building departments they were familiar with through a series of questions. The responses are shown in a Table IV, below, as a function of favorable responses.

TABLE IV

Perceptions of Building Departments

Held by Architects and Engineers

Item	Favorable response
Ease in obtaining pre-submission coordination and review meetings.	61% had no difficulty
Are Building Officials and Plan Reviewers qualified for their positions?	54% of the firms felt they are
Are Inspectors qualified in their functional areas?	43% of the firms felt they are
Is their a difference in competence between certified and uncertified personnel?	52% of the firms felt that there is

The choice for response on the qualifications of Building Officials, Plan Reviewers, and Inspectors ran from very well qualified through unqualified. Any choice less than qualified was considered a negative response. The majority of respondents consider inspectors generally unqualified for their positions and a large minority (46%) indicated that the Building Officials and Plan Reviewers were similarly unqualified.

Not all individuals responding were familiar with the certification programs available for code enforcement personnel. However, it is interesting to note that 42 percent of the respondents aware of the certification procedures did not consider that the certification process currently existing within Florida made a substantial difference in the professional competence of the code enforcement personnel.

A comparison between opinions on the qualifications of code enforcement personnel and the size of the design firm is shown in Table V.

TABLE V

Opinions of Architects and Engineers

Concerning Qualifications of Code Enforcement Personnel

Number of Arch/Eng in office or branch	1	2-3	4-6	7-10	11+
Unfavorable Opinion of					
Bldg.Off/Plans Rev	33%	47%	73%	40%	20%
Unfavorable Opinion of					
Inspectors	55%	54%	77%	20%	20%

The data show that larger firms have a more positive opinion of the qualifications of their counterparts in the permitting and inspection area than do the smaller firms. On the basis of personal interviews with architectural firms of various sizes it would appear that this difference is caused primarily by management procedures. Larger firms have an individual(s) whose principle function(s) is to check all of the pertinent regulations and amendments prior to starting design, to confer with local officials during the design process, and to shepherd the plans through review. These individuals become knowledgeable of the code and the local amendments and smooth the path for the design professionals. Smaller firms find it more difficult to devote time to these activities.

In addition to the data displayed in Table V, the questionnaire solicited opinions on the uniformity of code enforcement between jurisdictions. These are summarized as follows with the percentage of the firms providing a positive response following the questions:

Does strictness of enforcement vary from jurisdiction to jurisdiction?

Widely	48%
To a large extent?	23%
Some	29%

Is uniformity in enforcement a function of

professional background of department personnel	38%
attitude of personnel and the Building Official	52%
complexity of project	20%

The data show that more respondents consider the attitudes of the Building Official and departmental personnel to be the most important single factor in uniformity of enforcement than the other choices given. Interviews with both large and small architectural firms confirmed this. In addition, those firms handling large or complex projects agreed that building department reviews of proposed large works tended to be cursory and that they had more difficulty pushing small projects through. This reality clearly could have influenced the data distribution reflected in Table V.

The survey questions on the use of local amendments and other factors concerning the locally adopted code, together with the responses, are as follows:

Does your firm have difficulty keeping abreast of changes and amendments to the model code?

Yes	47.5%	No	52.5%

Does your firm have difficulty in determining the type and extent of local amendments to the model code?

Yes 81% No 19%

Do you feel that local amendments to a model code

should not be allowed?	Agree 23%
are difficult to track	Agree 39%
can be tracked with reasonable effort?	Agree 13%
are over used?	Agree 14%
are useful?	Agree 11%

From the responses it is possible to gather that the architects and engineers are not totally opposed to local amendments. In fact, if you add the percentages of "should not be allowed" and "are over used" and consider these as truly negative responses, less than 40% of the people most affected by the local amendment process want to see the capability of having local amendments removed.

The point that does ring out loud and clear is the lack of communications and respect between the enforcers and those designing projects. The designers have difficulty in determining the scope of the local amendments, feel too much time and effort is wasted in tracking these, and are suspicious of the qualifications of the code enforcement personnel. Selected letter responses that accompanied the returned surveys are included in Appendix C.

Out of State Building Code Adoption, Revision, & Certification

The research revealed that thirty of the United States had adopted a statewide building code as of May, 1991. In one case the effective date of adoption was subsequent to that date. Letters were sent to the cognizant official for each of the thirty states

requesting information on the following:

the policy on local amendments;
method by which state code was up-dated;
requirements for certification of code enforcement personnel.

A copy of one such letter and the response is included as Appendix E.

Replies were received from 9 of the states. Table VI summarizes the responses and data obtained from other research. Absence of data on certification and automatic up-dating of the code indicates that no response was received to inquiries about that state.

The table shows that over half of the states that have adopted a building code allow local amendments, albeit certain of these require state approval. In the case of Massachusetts, for example, which has a state written code based upon the BOCA model (NBC), local amendments are allowed but none have ever been approved for local use only. All locally suggested amendments have instead been adopted on a state-wide basis.

Of those states responding, two thirds do not require that the code enforcement personnel be certified in their fields. The reader should note that these data are only for state mandated certification and do not reflect local requirements with respect to certification or experience.

The automatic up-dating of the state adopted codes was generally provided for by hearings during which amendments were proposed, approval of the state agency that promulgates the code, and adoption of the latest version of the model code after review at the state level. Of those states responding, two thirds provide

a mechanism for automatic updating of their building code.

TABLE VI

State Building Code Survey

State	Model	Local Amend	Certification Required	Auto Up-date
Alabama	SBC	No	No	No
Alaska	UBC	YES		
Arkansas	SBC	No	No	No
California	UBC	Yes		
Connecticut	NBC	Yes (1)		
Florida	SBC	Yes	No	No
	SFBC	No	No	Yes
	EPCOT	NA	No	No
Georgia	SBC	Yes		
Indiana	UBC	No		
Iowa	UBC	No		
Kentucky	NBC	No	Yes	Yes
Massachusetts	MA state	Yes (1)	No	Yes
Michigan	NBC	No		
Minnesota	UBC	No		
Montana	UBC	No	No	Yes
New Hampshire	NBC	Yes		
New Jersey	NBC	No		
New Mexico	UBC	Yes		
New York	NY State	Yes (2)		
North Carolina	SBC	Yes (1)	Yes	No
North Dakota	UBC	Yes		
Ohio	NBC	No		
Oklahoma	Various	Yes		
Oregon	UBC	No		
Rhode Island	NBC	Yes (1)	Yes	Yes

TABLE VI (Cont.)

State	Model	Local Amend	Certification Required	Auto Up-date
Tennessee	SBC	No (3)		
Utah	UBC	Yes (1)		
Vermont	NBC	Yes (1)		
Virginia	NBC(4)	No	Yes	
Washington	UBC	Yes		
West Virginia	NBC	Yes		
Wisconsin	Wis.State	No		
Wyoming	UBC	Yes		

Notes:
1. State approval required
2. New York City Exempt
3. Approx. 20 large cities exempt
4. NBC partially replaced by state

Certification & Education of Code Enforcement Personnel in Florida

The State of Florida has not established minimum qualifications for code enforcement personnel and does not mandate that these persons be licensed in any manner. Local jurisdictions may require formal education and certification, either as a condition to be met prior to employment or as a requirement to be fulfilled within a specified interval of time subsequent to employment. However, there is no consistency in the local requirements throughout the state.

The SBCCI maintains a voluntary certification program for individuals involved in code enforcement and code administration and these certifications are recognized by the state even though not required. The areas of certification are:

LEVEL 1

Building Inspector
Coastal Construction Inspector
Commercial Electrical Inspector
Electrical Inspector
Fire Inspector
Housing Rehabilitation Inspector
Mechanical Inspector

One and Two Family Dwelling Inspector
Plumbing Inspector
Residential Electrical Inspector

LEVEL 2

Building Plans Examiner
Electrical Plans Examiner
Fire Inspector for Plans Examination
Mechanical Plans Examiner
Plumbing Plans Examiner

LEVEL 3

Legal and Management
Chief Building Code Analyst
Chief Electrical Code Analyst
Chief Fire Prevention Code Analyst
Chief Mechanical Code Analyst
Chief Plumbing Code Analyst
Housing Rehabilitation Code Enforcement Officer
Code Enforcement and Administration Professional

CABO Certification (recognized by SBCCI and Florida)

Building Official

Personnel involved in code enforcement may take home study courses or organized classes in these fields followed by a written examination. The program is designed to allow individuals to demonstrate increasing levels of professional competence through increasing levels of certification. The Codes and Standards Bureau within the Department of Community Affairs maintains a roster of code enforcement personnel that have received this training, have passed the examination and received their certificate from the SBCCI (or a similar certificate from the Council of American Building Officials (CABO)), who apply to be placed on the list, and who meet the following additional criteria:

recommended by three individuals competent to judge the applicant's expertise;

state established experience and/or educational requirements applicable to the area of certification;

employed in a code enforcement position or actively engaged in seeking such employment.

Continued certification by the SBCCI and the state is dependent upon completion of a minimum of 4 continuing educational units each two years. Appendix F details the experience and/or educational requirements for each of the certified categories recognized by the state. At the present time there is no legislation before the legislature that would mandate a state-wide standard.

The researchers determined that efforts are being made to establish minimum educational requirements for persons employed in code enforcement and administration. For the most part these are fragmented, without the active involvement of the state government, and pursued by local building officials or the Building Officials Association of Florida (BOAF). The thrust of each of these operates through a series of courses at a community college leading to an associates degree. Miami-Dade Community College already has an established program which, in addition to the associates degree, can be continued with a university granting a baccalaureate degree in public administration. The Board of Rules and Appeals of Broward County has established minimum educational standards for future employees in the field. Broward Community College has recently established a program oriented towards code enforcement which fills the requirement and leads to an associates degree in Civil Engineering Technology. Palm Beach County is examining establishment of a program upon lines recommended by BOAF. Other community colleges throughout the state sponsor seminars and classes leading to the SBCCI certification tests.

Interviews with Building Departments and Architects

Interviews were conducted, personally and by telephone, with Building Officials and inspectors of cities and counties throughout the state and architects in various cities. The purpose of the interviews was to allow the researchers to better analyze the data obtained from the questionnaires, to solicit opinions, and to confirm feelings such as those expressed in letter responses to the

surveys (Appendix F). A summary of the impressions gathered during these interviews follows.

Building Departments

All of the code enforcement officials interviewed expressed a requirement for local amendments to bring the code in line with their administrative procedures. With rare exception, the Building Officials defended the use of other local amendments on the grounds that some flexibility is required to adapt to local conditions and to augment life safety requirements. Most agreed that some local technical amendments were adopted for non-technical reasons. The survey had indicated and the interviews confirmed that most thought a geographical area review board for such amendments would be a good idea. Most wanted to see a state wide building code, but with local amendments allowed.

The researchers found that there is a great disparity between jurisdictions as to the minimum qualifications required for Inspectors, Plan Reviewers, and Building Officials. In one jurisdiction it was found that there were no minimum standards set by law or administrative regulation. In another, the primary consideration appeared to be whether or not individuals had worked for or as sub-contractors to other personnel in the department. In yet another, the minimum experience standards were so high that they eliminated all but retired or semi-retired contractors or journeymen.

Several jurisdictions pay a bonus or incremental increases in salary, usually a percentage of the base pay, for individuals who obtained an SBCCI certification in any given field. These incentives were not limited to the field in which the individual was working. If one cared to they could collect multiple certifications and collect the incentive with each. On the other hand, one building official stated the certification process was a waste of time and the tax payers money. He had attended a seminar where the work lead to certification and demanded (and got) his money refunded.

Most of those interviewed felt that the continuing education

them which were signed by the architect. (In that jurisdiction the change had to be done on the original and new blue prints submitted. If there were stamps or other notations by reviewing officials on the discarded sheets the process had to start all over again.) The surveys showed and the interviews confirmed that there is overwhelming support for certification procedures for code enforcement personnel. The perceived rationale for advocating certification was that any training contributing to uniform administration and interpretation of the code would be a step forward.

Yet another administrative concern of the architects was the lack of centralized plans processing. In some jurisdictions they would have to present plans to several different offices, each checking for their specialty or ensuring adherence to zoning or other development rules. In others they had only to go to one place and an internal distribution system took care of the paper flow. The reason that this was considered a problem area was that each jurisdiction was different and required a different set of approvals in a given order. Unless a checklist is provided, architect's spend fruitless hours trying to comply with the local administrative scheme.

DATA SUMMARY

Investigate the widespread use of local amendments to the model building codes, their necessity, and the problems caused by their adoption.

The investigators found that, except in Broward and Dade Counties, almost all jurisdictions and agencies having building departments amend the adopted building code. Amendments are most often made to the administrative sections of adopted codes. Occasionally they are made to technical sections. As long as Florida operates under a "home rule" concept where individual jurisdictions can establish their own administrative requirements and qualifications of code enforcement personnel, the requirement for the ability to make these administrative changes will remain.

The rationale for local technical amendments is less compelling. The interviews conducted throughout the state revealed that technical amendments were generally in place to protect trade associations, specific groups of contractors, or other special interest groups. The majority of the building officials interviewed were opposed to such amendments and, in several cases were actively deleting them from the local ordinances. The architects interviewed all felt that these types of amendments posed a problem from the standpoint of design review. However, both the building officials and the design professionals felt that there were regional differences throughout the state that would require regional amendments to an adopted model building code, much like the variations incorporated in the energy code.

The surveys of building officials found (90%) that their personnel had no difficulty in keeping abreast of the local amendments. On the other hand, the architects and engineers surveyed reported (81%) had difficulty determining local amendments. The architects felt that they were often in the blind as to code amendments mandated by local jurisdictions. Only 23% of the architects and engineers were opposed to any type of local amendments and instead spoke of the need for better communication, i.e., newsletters, a comprehensive listing of amendments, and project coordination meetings prior to detailed design.

Investigate the relationship between uncertified Building Officials and non-uniform code enforcement.

An assumption often made is that competency of enforcement personnel is analogous to uniform enforcement. Similarly, an assumption implicit in the study directive was that competency can be measured by determining if an individual is certified by a trade or governmental organization. However, the investigators found little correlation between the certification of code enforcement personnel as it is currently done in the State of Florida and the perception of the architects and engineers as to the uniformity of code enforcement throughout the state. While a majority (58%) stated that certified personnel were generally more competent, the remainder stated that they were not. Similarly, over half of the architects and engineers responding felt that the inspectors were, in general, unqualified. Further, almost half (44%) felt that

building officials and plans reviewers were unqualified for their positions. In the opinion of the design professionals the most important single factor affecting uniform code enforcement was the attitude of the personnel in a building department, not the level of certification.

BIBLIOGRAPHY

"An Architect's Guide to Building Codes & Standards," 2nd edition, American Institute of Architects, Washington, DC, 1990

Auditor General of the State of Florida, Report 11601, "Performance Audit of the Building Construction Code Programs," March 25, 1991.

Auditor General of the State of Florida, Report 11604, "Performance Audit of the Thermal Efficiency Code and Energy Conservation Standards Act.", April 2, 1991.

Bain, Howard, M., Legal Issues for the Building Industry, "Buildings',Vol 82, pg 46+, July 1988.

Bakke, Timothy O., Better Quality Houses (Code Plus Program), "Popular Science", Vol 236 p 46+, April 1990.

Building Code Requirements, "Southern Living", Vol 22 pg 145 Feb 87.

"Building Construction Regulations in Florida," Report No. 1, External Inputs--Selected Experiences from Other States, Institute for Building Sciences, Florida A & M University, May, 1987.

"Building Construction Regulations in Florida," Report No. 2, Roundtable Discussions, Institute for Building Sciences, Florida A & M University, May, 1987.

"Building Construction Regulations in Florida," Report No. 3, Code Comparisons and Experiences of Franchise Builders, Institute for Building Sciences, Florida A & M University, May, 1987.

"Building Construction Regulations in Florida," Report No. 4, Summary and Recommendations for Code Reform Actions, Institute for Building Sciences, Florida A & M University, May, 1987.

Code Conscious Florida Fails to Keep Current, "Engineering News Record", V 226, pg 17+, June 19, 1991.

Conover, D., Beginning of the End for U. S. Codes and Standards, "Air Conditioning, Heating, and Refrigeration News", Vol. 181, pg

24, September 3, 1990.

Conover, D., Lane, K., & Meier, C., EC 92, Beginning of the End for U. S. Codes and Standards, "Air Conditioning, Heating, and Refrigeration News", Vol 180, pg 24, August 27, 1990.

Contractor Group Fights Oregon's Adoption of CABO Code, "Contractor", Vol 37, pg 32, June 1990.

"Directory of Building Codes & Regulations (1991)", National Conference of States on Building Codes & Standards, Herndon, VA, 1991.

Harvey, Clifford S., A Flexible Approach to Fire-Code Compliance, "Architectural Record", V 176, pg 130+, October 1988.

Hooper, Larry R., It's BOCA vs. National Standard in Vermont Plumbing Code Fight, "Contractor", Vol 38, April 91, pg 6.

Hoyt, Charles King, Presentation at an AIA Conference in Boston, "Architectural Record", Vol 176, pg 45, March 88.

Ichinowski, T., & Kemezis, P., Standards Set for Federal Buildings, "Engineering News Record", Vol 274. pg 10+, Jan 18, 1990.

Korman, Richard, Housing Codes Changed, "Engineering News Record", V 221, pg 11+, August 4, 1988.

Lurz, W. H., The Drive for Uniform Statewide Building Codes Gains Momentum, "Professional Builder", V 54, pg 69, September 1989.

Lynch, Milton F., Architect-Engineers Turf Wars Resurface, "Building Design & Construction", V 29, pg 51, May 1988.

McLeister, D., Why Building Codes Might Look More & More Uniform, "Professional Builder", Vol. 53, pg 79, April 1988.

Post, Nadine M., & Korman, Richard, A Much Misunderstood Contraption: Adoption of Model Building Codes, "Engineering News Record", Vol 222, p 30, June 22, 1989.

Russell, James S., Innovative Exteriors: Has technology Left Building Codes Behind?, "Architectural Record", V 177, pg 20+, December 1989.

Sabatini, J., Ensuring Code Compliance in High-Hazard Buildings, "Plant Engineers", V 44, pg 57+, May 10, 1990.

Snyder, Milton, Police Power Should Enforce Codes, "Contractor", Vol 35, pg 59, April 88.

Southern Building Code Congress International, Inc., "Certified Code Enforcement and Administration Professionals," SBCCI, Birmingham, AL, 1991-1991.

Southern Building Code Congress International, Inc., "Salary, Personnel and Workload Survey for Building Departments," SBCCI, Birmingham, AL, undated.

Steiner, Vera M., Building Codes-Bane or Blessing, "Plant Engineering", V 42, pg 88, July 21, 1988.

Stubs, M. Stephanie & Gordon, Douglas E., Federal Building Code: Why Still a No-Go?,"Architectural Record", Vol. 178, July 90, pg 31+.

Thompson. Roger, Home Construction on a New Road, "Nation's Business" V 74, pg 34-7, Aug ;86.

Trewhitt, Jeff, Compilation of Sloping Glass Codes Shows Regional Differences, "Architectural Record", V 175, pg 37, Oct 87.

APPENDIX A

STANDARDS WRITING ORGANIZATIONS
and
CERTIFICATION RESEARCH CENTERS

1. American National Standards Institute
   1430 Broadway
   New York, New York 10018
   Tel. (212 354-3300

2. Building Officials and Code Administrators International
   4051 West Flossmoor Road
   Country Club Hills, Illinois 60478-5795
   Tel. (708) 799-2300

3. Council of American Building Officials
   5203 Leesburg Pike, Suite 708
   Falls Church, Virginia 22041
   Tel. (703) 931-4533

4. International Conference of Building Officials
   5360 South Workman Mill Road
   Whittier, California
   Tel. (213) 699-0541

5. National Conference of States on Building Codes
   505 Huntmar Park Drive, Suite 210
   Herndon, Virginia 22070
   Tel. (703) 437-0100

6. National Institute of Building Sciences
   1201 L Street, NW, Suite 400
   Washington, D.C. 2005
   Tel. (202) 289-7800

7. Southern Building Code Congress International
   900 Montclair Road
   Birmingham, Alabama 35213
   Tel. (205) 591-1853

8. William Rainey Harper College
   Building Code and Enforcement Certificate Program
   Special Services Division
   Algonquin & Roselle Roads
   Palatine, Illinois 60067

APPENDIX B

Response data in bold print

Building Department Survey

September 17, 1991

Florida International University
Department of Construction Management
Survey of Building Officials

Please check or circle the appropriate answer below. Feel free to make extended comments on any of the subject areas. You may use the margins of the questionnaire or separate sheets if you wish. All responses will be kept strictly confidential.

1. YOUR BACKGROUND	YES	NO
a. Registered architect or engineer?	9__	___
b. Bachelor's degree in architecture or engineering?	13_	___
If not, Bachelor's degree in another discipline?	16_	___
c. Post graduate work?	16_	___
d. State Certified Contractor	37_	___
e. Not Certified but hold Certificate of Competency	22_	___

f. Certified or Licensed as (circle disciplines)

General(37) Building(11) Residential(6) Mechanical(8) Electrical(11)
Plumbing(8) Other (specify)(12)_____

g. How many years have you been a building official? (circle one)

0-1(4) 2-4(34) 5-7(18) more than seven(42)

2. YOUR DEPARTMENT

a. Number of full time inspectors? (circle one)

0-3(40) 4-7(19) 8-15(22) 16-30(13) more than 30(34) none(1)

b. Number of full time plan reviewers? (circle one)

0-3(75) 4-7(20) 8-15(2) 16-30(1) more than 30(0) none(1)

c. Number of support personnel (secretaries, counter personnel,etc.)? (circle one)

1-5(71) 6-10(22) 11-20(13) more than 20(6)

d. Which of the following disciplines have separate department or section heads? (circle as appropriate)

None(67) Structural(28) Mechanical(28) Electrical(32) Plumbing(28)6
Civil(2) Other(specify)(8)_____

If you have separate department or section heads are they responsible for: (circle) Plan Review?(2) Inspection?(5) Both?(29)

f. How many of your plan review personnel are licensed in their respective disciplines by: State?_____ County?_____ Both State & County?_____ Other?_____

g. How may of your inspectors are licensed in their respective disciplines by: State?_____ County?____ Both State & County?_____ Other?_____

h. In your opinion are most of your plan reviewers: (circle one) Very well qualified?(24) Well qualified?(47) Qualified?(23) Marginally qualified?(2) Not qualified?(1)

i. In your opinion are most of your inspectors: (circle one) Very well qualified?(22) Well qualified?(56) Qualified?(16) Marginally qualified?(2) Not qualified?(0)

j. Averaged over the last 3 years what is the number of plans sets reviewed in you department annually? (circle one) 1-500(35) 501-1000(28) 1001-2000(6) 2001-3000(13) 3001-5000(10) more than 5001(17)

k. Averaged over the last 3 years what is the number of permits (all disciplines) issued by your department annually? (circle one) 1-1000(12) 1001-2500(33) 2501-8000(27) 8001-15000(16) More than 15,000(12)

l. Does a representative of the fire marshall for your jurisdiction do: (circle) Plan reviews?(7) Inspections?(4) both?(93)

m. Is your department record keeping system for projects: (circle one) Totally computer based?(40) partially computer based?(46) Manual?(19)

n. Does your department have ready access to current information concerning state wide codes, such as the energy code, safety code, or handicapped requirement? (circle one) Y(96) N(7)

o. Does your department have a standardized appeals process?(circle one) Y(96) N(7)

p. Does your department publish a "Users Guide" or pamphlet or paper outlining the steps in the permitting process such as environmental checks, zoning, number of sets of plans needed, etc? (circle one) Y(84) N(19)

q. Do your reviewers/inspectors have difficulty in interpreting the model code? (circle one) Y(10) N(89)

r. Do your reviewers/inspectors have difficulty in keeping up with the local amendments? (circle one) Y(10) N(90)

s. What is your first time failure rate averaged over the

last three years for plan review?_____%

for inspections?_____%

t. If available, provide the same data for 2nd time

plan review_____%

inspections_____%

s. Do you have a formal continuing education program for inspectors? (circle one) Y(71) N(33)

for plan reviewers? (circle one) Y(65) N(35)

u. Does your department allow contractors to request scheduled times for inspections?

(circle one) Y(48) N(41)

3. BUILDING CODE

a. Which building code is used by your jurisdiction: (circle one)

SBCC International?(78) So.Fla.BC?(23) Other (specify)(1)_____ ?

b. How many local amendments to the model code have been adopted by your jurisdiction? (circle one)

0-10(58) 11-20(9) 21-50(6) 51-100(6) 101-200(0) 201-300(0)

more than 300(2) unknown(8)

c. Within your jurisdiction how are local amendments originated?

_____

_____

_____

d. Within your jurisdiction how are local amendments approved?

_____

_____

_____

e. In your opinion are architects,engineers,contractors, etc. generally able to stay abreast of the local amendments? (circle one) Yes(51) No(42)

4. GENERAL INFORMATION

a. Do you favor:

Adoption of a single state-wide building code with allowances for geographical differences? (circle one) Y(73) N(25)

Approval of all local amendments by a state wide or geographical area committee made up of local building officials or their representatives? (circle one)

Y(51) N(41)

Local amendments to the code? (circle one) Y(58) N(35)

b. Do you feel the use of local amendments to the standard code is:

(circle one) Useful?(48) Over used?(21) Should not be allowed?(27)

c. Do you feel that there is a positive relationship between the plan review/inspection failure rate and:

(circle one) Training of your personnel? Y(52) N(34)

(circle one) Use of local amendments? Y(31) N(42)

Thank you for taking the time to fill out this questionnaire.

APPENDIX C

Typical Letter Comments

A. Excerpts from a letter from a Building Official in response to the survey.

I am very much interested in your study of the use of local amendments to model building codes. I have completed the questionnaire and would like to offer some additional comments on the issue.

The development of model building codes has benefitted the public, building industry and code enforcement community. I am an advocate and supporter of the model codes at many levels. This does not mean, however, that I do not support some use of local amendments. In my experience in-----County, an area which has experienced one of the nation's most explosive growth rates, the use of model codes and local amendments has been positive.

I believe the major flaw in the use of local amendments is the lack of **constant periodic review** (sic). Unlike the model codes which are reviewed on a regular basis by both the public and private sectors, local amendments do not receive this type of attention. Local government often do not have the resources to continually review local codes and ordinances to reflect changing building technology.

The answer may be in the development of <u>regional councils</u> (sic) with the authority to review and recommend adoption of local amendments. As an example------established in --- by a Special Act of Florida Legislature, is charged with such a task. The Board is composed of nine industry representatives and seven building officials.

B. Excerpt from a letter from and architectural firm in response to the survey.

I am pleased to participate in your survey. A gathering of data on this subject is long overdue, however, it needs to be expanded to include handicapped and fire codes, fire marshal's and fire inspector's qualifications. Problems frequently occur, particularly on larger structures, assembly and mixed occupancy facilities in the form of code conflicts and jurisdictional differences o interpretation.

Matters get complicated when all jurisdictions do not use the same editions of codes. For example, the applicable edition of The Life Safety Code NFPA-101 in State owned and occupied buildings is the 1985 edition. For other buildings,it is the 1988 edition. Furthermore there are conflicts between them and the Florida Accessibility Code (handicapped Code) relative to handrail heights. This conflict requires case by case resolution through interpretation. Additionally our schools are constructed under Rule 6A-2 FAC to the 1981 edition of the Standard Building Code and the 1981 edition of the Life Safety Code NFPA-101. In short, we desperately need coordination and uniformity in our system of code promulgation and enforcement from the basic code through qualifications and training of enforcement personnel.

C. Excerpts from a letter from an architectural firm in response to the survey.

I actually enjoyed receiving your questionnaire. It possibly gave me a chance to vent my Florida frustrations which do not exist in the rest of the country.

I have been a practicing architect for well over two decades but I have never experienced such irrational behavior on the part of building officials in any other areas of the country.

Regarding question 1E

Quite frankly, I would rather experience permitting of a high rise structure in downtown Cleveland rather than replacement of a sliding glass door in Florida.

Regarding question H

I have yet to meet anyone in the Building Department who I would

consider qualified to work for me to develop the construction documents which they are checking.

In my opinion you should not have the R. N. telling a surgeon how to perform heart surgery. Either the nurses need to get awfully smart or let the surgeon do his work.

Appendix D

Response data in bold print

FLORIDA INTERNATIONAL UNIVERSITY
DEPARTMENT OF CONSTRUCTION MANAGEMENT
SURVEY OF ARCHITECTS & ENGINEERS

Please check or circle the appropriate answer for the questions below. Feel free to make extended comments on any of the subject areas either in the margins or on separate sheets. Your responses will be treated as confidential.

1. YOUR FIRM OR BRANCH OFFICE

a. Number of full time registered architects/engineers? (circle one)

1	2-3	4-6	7-10	more than 10
(20)	**(41)**	**(16)**	**(5)**	**(7)**

b. Number of other professional personnel such as draftsmen, inspectors, project manages, surveyors? (circle one)

0	1	2-3	4-6	7-10	10-15	more than 15
(4)	**(14)**	**(33)**	**(20)**	**(10)**	**(2)**	**(8)**

c. Number of secretarial and support personnel? (circle one)

0	1	2-3	4-6	7-10	more than 10
(8)	**(31)**	**(36)**	**(5)**	**(3)**	**(2)**

d. Averaged over the last 3 years, please estimate the number of projects that your firm has handled with a completed construction cost of (circle as appropriate)

less than $100,000	0	1	2-5**(6)**	6-10**(10)**	11+**(28)**
$100,001-$200,000	0	1**(1)**	2-5**(7)**	6-10**(7)**	11+**(29)**
$200,001-$400,000	0	1	2-5**(14)**	6-10**(9)**	11+**(25)**
$400,001-$700,000	0	1**(1)**	2-5**(17)**	6-10**(13)**	11+**(19)**
$700,001-$1,100,000	0	1**(2)**	2-5**(17)**	6-10**(14)**	11+**(12)**
$1,100,001-$1,800,000	0	1**(9)**	2-5**(17)**	6-10**(7)**	11+**(12)**
$1,800,001-$2,500,000	0	1**(11)**	2-5**(12)**	6-10**(8)**	11+**(6)**
$2,500,001-$3,500,00	0	1**(7)**	2-5**(13)**	6-10**(6)**	11+**(5)**
$3,500,001-$5,500,000	0	1**(8)**	2-5**(9)**	6-10**(8)**	11+**(4)**
Over $5,500,001	0	1**(4)**	2-5**(17)**	6-10**(8)**	11+**(9)**

e. Does your firm have difficulty in obtaining pre-submission plan reviews or coordination meetings with building departments?
(circle one) yes no
(33) (52)

f. Do you feel that your firm has difficulty in keeping abreast of changes and amendments to the model building code, such as the SBCCI, South Florida, or Epcot codes? (circle one) yes no
(39) (43)

g. Does your firm have difficulty in determining the type and extent of the local amendments to the model code? (circle one) yes no
(64) (15)

h. In general, do you find that the building officials and plan reviewers are (circle one)
Very Well Qualified?**(1)** Well Qualified?**(9)** Qualified?**(39)**
Marginally Qualified?**(36)** Un-Qualified?**(5)**

i. In general do you find the inspectors (circle one)
Very Well Qualified?**(0)** Well Qualified?**(4)** Qualified?**(37)**
Marginally Qualified?**(44)** Un-Qualified?**(10)**

j. Do you feel that local amendments to a model code (circle as appropriate) should not be allowed?**(24)** are difficult to keep track of?**(41)** can be tracked with reasonable effort?**(14)** are over used?**(15)** are useful?**(12)**

2. GENERAL INFORMATION

a. Do you have a preference of model building codes? (circle one)
No SBCCI South Florida CABO Other (specify)_____
(29) (51) (7) (0) (6)

b. Do you believe that more restrictive local amendments should be allowed to the model code (circle one) yes**(40)** no**(49)**

c. Do you favor the adoption of a single, state-wide code? (circle one) yes**(73)** no**(14)** no opinion**(7)**

d. Are you aware of the certification programs available for building officials/plan reviewers/inspectors? (circle one) yes(62) no(34)

e. Do you generally find a difference in professional capability between certified and non-certified personnel? (circle one) yes(45) no(32)

f. Do you believe that certification, similar to that required for contractors, should be required for (circle as appropriate):

Building Officials	yes(89)	no(2)
Plan Reviewers	yes(84)	no(4)
Inspectors	yes(84)	no(4)

g. Do you find that strictness in enforcement of provisions of the building code varies from jurisdiction to jurisdiction (circle one)
Widely?(43) To a large extent?(20)
Some?(26) Insignificantly?(1) Not at all?(0)

h. In your opinion, is the uniformity of enforcement of the building code, or lack thereof, mainly a function of (circle as appropriate)

1. professional background of building department personnel?(42)
2. attitude of personnel and building official?(58)
3. complexity of plans/project?(22)

The Commonwealth of Massachusetts
Executive Office of Public Safety
State Board of Building Regulations and Standards
McCormack State Office Building
One Ashburton Place - Room 1301
Boston, Massachusetts 02108

(617) 727-3200

William F. Weld
Governor

Kentaro Tsutsumi
Chairman

Charles J. Dinezio
Administrator

November 13, 1991

Mr. John M. Dye, GC
Construction Management Department
Florida International University
3501 South West Davie Road
Davie, FL 33313

Dear Mr. Dye:

Your letter dated November 6, 1991, to Mr. Charles Dinezio has been referred to me for reply.

First, you stated that Massachusetts is one of the few states that has not adopted one of the national model codes. In truth, although there have been many technical changes, the Massachusetts State Building Code is a BOCA-based code. It has been since its promulgation in the seventies. The current edition of the Mass. State Code (Fifth edition), is based on the 1987 BOCA National Building Code. Over the years, the State has modified many of the BOCA provisions - some because of conditions in the state, others because of Mass General Law Requirements, and others where we believe the state led BOCA or the model codes in many areas, such as energy, code treatment of existing buildings, group homes, and the like. The 1 and 2-family provisions of the Mass Code are based upon the CABO code - once again with technical modifications. We feel that the model codes are catching up to us, however, and we have been heading in the direction of adopting the BOCA model with fewer technical modifications. The Fifth edition, insofar as possible, has adopted the Article and Section numbering system of BOCA, and has also highlighted within the Mass code, the sections which are different from BOCA.

It is true that local municipalities may amend the code with the approval of the State Board of Building Regulations and Standards (BBRS). Justification for such a change must be made on the basis of specific conditions in the community which would justify a technical change in the State code. No such changes have been allowed since the state code was adopted. We feel that although there may be some instances in which conditions are different enough to warrant a change in the code, we obviously do not encourage the practice. In Florida, where your climatological and land areas are quite different, there may be more justification for regional or area differences in the code, but the burden of proof rests on the proposer to justify any change or variance for a specific community.

Code up-dating is a continuous process. First, the authorizing legislation requires a minimum of two public hearings each year, at which anyone is allowed to propose changes to the state building code. Having 20 to 25 code change proposals (some redundant) is usual. The BBRS then considers the changes, conducts some research, if it is felt necessary, and then decides on a code change. In addition, the staff of the BBRS follows the BOCA change cycle, and recommends whether or not to follow the BOCA changes. Also, the BBRS has a number of voluntary Standing Advisory Committees - Fire Protection-Fire Prevention, Seismic, Geotechnical, Loads, Construction Materials Safety Board - each of which has technical responsibility for recommending changes to the appropriate sections of the building code. The members are all volunteer members of the appropriate technical community in the state. We are lucky to have a fine technical academic and private sector pool of willing experts who volunteer their time and expertise to these tasks. Staff support to these advisory committees is provided by the technical staff of the BBRS.

Up to this point, the state sets certain minimum experience and/or educational requirements for local building officials and local inspectors, but does not require "certification" in the normal sense of the term. A certification committee consisting of representatives of the three Massachusetts Inspector Associations has been considering certification, and is likely to recommend a program along the lines of the BOCA program. (I understand that BOCA and SBCC have recently agreed to recognize each others' certification programs and allow reciprocity). As a Board, we are in favor of certification in principle. We have been studying other state certification programs for guidance in proceeding in this direction.

Please remember that the above refers to the building code only. Massachusetts has several other codes and regulations impacting upon construction that are not under the control of the State Board of Building Regulations and Standards, including electrical, plumbing, elevator, boilers, architectural access, fire prevention regulations, some environmental regulations, deleading regulations, some local option laws on sprinkler requirements, and the like. We make every attempt to avoid duplication of regulations and problems arising from enforcement authority, but there is not one central state agency with the legal responsibility and authority to insure that no problems will arise. A few cases have gone to court, but we do manage to reach agreement most of the time with other construction regulatory agencies.

If you would like to obtain copies of any Mass. regulations, or a catalog listing, price and availability information can be obtained from:

State House Bookstore
Room 116
State House
Boston, MA 02133
Tel. (617) 727-2834

The State Building Code (known as 780 CMR) does reference many other state regulations impacting on buildings. I believe the price is $34.00. I apologize for not being able to send you one comp, but with the state's fiscal condition, I'm lucky to have one!

I hope the above is of some assistance. Please call if you need further information.

Sincerely,
State Board of Building Regulations

William C. Plouffe
Technical Supervisor

APPENDIX F
State of Florida
Requirements for Certification

REQUIREMENTS FOR CERTIFICATION OF
BUILDING OFFICIAL, INSPECTOR, AND INSPECTOR TRAINEE

Any person requesting certification in any of the classes established shall submit to the Board a completed application. The application shall indicate:

1. A record of applicant's employment.
   a. Time period(s).
   b. Place(s) of employment.
   c. Nature of work performed.

2. A record of applicant's education and training. (A minimum high school degree or equivalent.)

3. College training may be substituted for the required experience on a year-to-year basis.

4. Submit recommendations from 3 individuals in building construction or related fields who certify that they are competent to evaluate the applicant's expertise (except for inspector trainee category). Only one of the recommendations may be from a member of the present employment company or agency.

Each classification must meet the following additional certification criteria:

a. Building Official.

1. Exhibit evidence of the successful passage of a written examination for building official administered by the Southern Building Code Congress International after January 1, 1987 or in the alternative, an examination administered by the Council of American Building Officials after December 1986, and

2. Have 10 years experience in architecture, building construction engineering; building construction inspection; building construction contracting, supervision, or as a person in a responsible charge of work; or combination thereof. At least 3 years of the total 10 years of experience shall be as a specialty code (building, plumbing, electrical, fire, gas, mechanical, or one and two family dwelling code) inspector or as a registered professional engineer or architect.

b. Building or One and Two Family Dwelling Inspector.

1. Exhibit evidence of the successful passage of a written examination administered by the Southern Building Code Congress International after October 1, 1978. Such examinations shall be for the specialty code for which the certification is sought, and

2. Have 5 years of experience as a municipal, county, state, or federal specialty code inspector or plans examiner; a residential, building, or general contractor; construction superintendent or person in a responsible charge of work; a registered professional engineer or architect; or any combination thereof.

c. Chief Inspector; Building, Electrical, Fire Prevention, Mechanical, and Plumbing.

1. Exhibit to the Board evidence of the successful passage of a written examination for plans examiner and inspector of such specialty code for which the certification is sought, as administered by the Southern Building Code Congress International after October 1, 1978; and

2. Have 10 years experience in architecture; building construction engineering; building construction inspection, contracting, supervision, or responsible charge of building construction work; or combination thereof. At least 3 years of the total 10 years of experience shall be as a code inspector or as a registered architect or professional engineer.

d. Electrical or Plumbing Inspector.

1. Exhibit to the Board evidence of the successful passage of a written examination administered by the Southern Building Code Congress International after October 1, 1978. Such examination shall be for the specialty code for which certification is sought, and

2. Have 10 years of experience in the electrical trade or in practical plumbing as appropriate.

e. Mechanical or Fire Prevention Code Inspector.

1. Exhibit to the Board evidence of the successful passage of a written examination administered by the Southern Building Code Congress International after October 1, 1978. Such examination shall be for the specialty code for which certification is sought, and

2. Have 5 years of experience in the mechanical or fire protection trades as appropriate.

f. Modular Buildings Inspector or Modular Buildings Plans Examiner.

1. Exhibit to the Board evidence of the successful passage of a written examination administered by the Southern Building Code Congress International after October 1, 1978. Such examinations shall be for the specialty code for which the certification is sought, and

2. Have 5 years experience in architecture; building construction engineering; building construction inspection, contracting, or supervision; a responsible charge of building construction work; or combination thereof. At least 3 of the total 5 years of shall be as a specialty code inspector; or as a registered professional engineer, or architect.

g. Plans Examiner: Building, Electrical, Plumbing, or Mechanical.

1. Exhibit to the Board evidence of the successful passage of a written examination for plans examiner of such specialty code for which the certification is sought, as administered by the Southern Building Code Congress International after October 1, 1978, and

2. Have 5 years of experience in architecture; building construction engineering; building construction inspection, contracting, or supervision; a responsible charge of building construction work; or combination thereof. At least 3 years of the total 5 years of experience shall be as a specialty code inspector; or as a registered professional engineer or architect.

h. Inspector Trainee.

1. Have 2 years experience in building construction work of any type.

DEFINITIONS:

(a) Building Official. A person named by a municipality for the overall implementation and enforcement of building construction codes.

(b) Chief Inspector. A person acting under the authority and direction of a building official, or other authority having responsibility for implementation and enforcement of building construction codes that supervises personnel who provide interpretations on and enforce a building construction code.

(c) Inspector. A person acting under the authority and direction of a building official and charged with the responsibility of routine enforcement of any specialty code.

(d) Inspector Trainee. A person with limited or restricted inspection responsibilities who works under the direct supervision of a building official or inspector of a specialty code.

(e) Modular Buildings Inspector. A person acting under authority of an agency having the responsibility for the inspection of manufactured buildings for compliance with the approved plans and specifications for such buildings.

(f) Modular Buildings Plans Examiner. A person acting under authority and direction of an agency having the responsibility for reviewing the construction plans and specifications of manufactured buildings for compliance with the applicable construction codes for such buildings.

(g) Plans Examiner. A person acting under authority and direction of a building official or chief inspector, who is responsible for review of construction plans and specifications for compliance with building construction codes.

(h) Specialty Code. A building, plumbing, electrical, fire, mechanical, or one and two family dwelling code as appropriate.

Note: The State of Florida standards for certification were furnished by the Codes and Standards Section of the Department of Community Affairs.