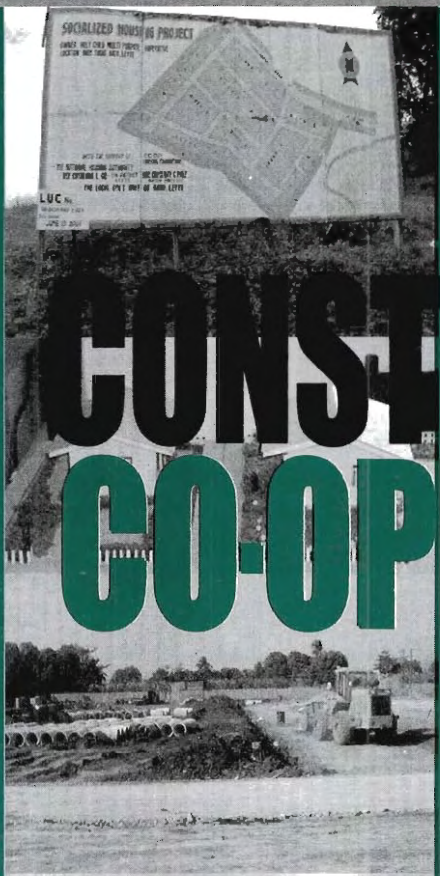
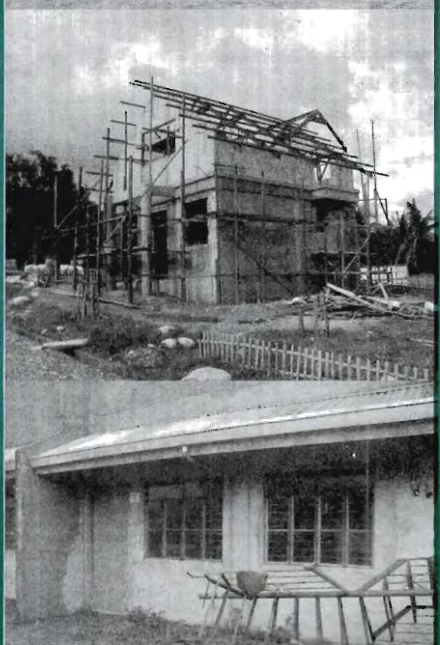
MANUAL ON COOPERATIVE HOUSING



6 CONSTRUCTING CO-OP HOUSING

a guide on construction management of the cooperative housing project



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CONSTRUCTING CO-OP HOUSING

A Guide on Construction Management of the Cooperative Housing Project

This CHF publication is produced with funds from the United States Agency for International Development (USAID).

Volumes Included in the Manual on Cooperative Housing

1
Analyzing Co-op Housing

2
Managing Co-op Housing

3
Financing Co-op Housing

4
Accounting Co-op Housing

5
Regulating Co-op Housing

6
Constructing Co-op Housing

CONSTRUCTING CO-OP HOUSING

A Guide on Construction Management of the Cooperative Housing Project

CHF International

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A Guide on Construction Management
of the Cooperative Housing Project

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Foreword

Adequate shelter is a right that should be enjoyed by everyone. International statutes such as the United Nations Declaration on Human Rights guarantee this right. However in the Philippines, providing shelter to the homeless remains one of the primary concerns of government and cause-oriented groups.

Various approaches have already been adopted to solve the housing problem. One such approach is cooperative housing. It is an alternative self-help approach which applies the principles and methodologies adopted by cooperatives to shelter delivery.

While historically, cooperative housing has been put into practice in the late 19th century in various countries, its growth and development in the Philippines has only begun recently. As a response to promoting this innovative approach, CHF implemented the Cooperative Development Program in 1997, with the National Housing Authority (NHA) as its local partner and with funding from USAID.

The program sought to increase the availability of affordable housing services to underserved populations through cooperative housing. In particular, technical assistance was extended to build up the institutional capacity of NHA and several cooperatives to establish cooperative housing as a sustainable system. Part of such efforts is the development of a training manual on cooperative housing.

This Manual on Cooperative Housing was thus conceived to guide cooperatives engaged in mass housing projects for their homeless

members. In the process, it is hoped that this will encourage the creation of a favorable environment for the emergence of more housing cooperatives in the future.

CHF produced this manual in order to provide cooperatives with a better understanding of the operational and technical requirements, as well as, the processes involved in the cooperative housing project.

This Manual is designed to explain various concepts in terms that will be best understood by its intended end-users, which are the cooperatives. CHF attempted to provide a simplified presentation of some of the most important elements and steps of cooperative housing since there are so many details and variables involved in this process that varies according to each situation.

While we have wanted to base this Manual on the actual experiences of the pilot cooperatives of the Cooperative Development Program, it was not possible since these cooperatives have not gone through the entire cooperative housing process at this stage. The Manual was developed and drew largely from presentations made during the National Conference on Cooperative Housing held in Cavite on December 2001.

Volume One on **Analyzing Co-op Housing: Historical Analysis of Cooperative Housing** discusses the emergence and growth of cooperative housing in different countries, what were the issues and problems they faced, and how were these resolved. It also examines the experience of the SLU-SVP Housing Cooperative, one of the country's pioneers in cooperative housing.

Volume Two on **Managing Co-op Housing: A Guide on How to Manage the Organization, Implementation, and Maintenance of the Cooperative Housing Project** explains how the project affects the organizational structure and processes of the cooperative. It defines project management and lays down the specific management requirements necessary for the implementation and maintenance of the project.

Volume Three on **Financing Co-op Housing: A Guide on How to Avail of Fund Assistance for Cooperative Housing from Land Bank of the Philippines** presents the details of the bank's Cooperative Pabahay Program and how this may be utilized by the cooperative to finance its housing project.

Volume Four on **Accounting Co-op Housing: A Guide on Accounting Systems for Cooperative Housing** presents the different financial transactions of the project and how these should be documented and accounted for by the implementing cooperative.

Volume Five on **Regulating Co-op Housing: A Guide on Securing Titles, Licenses and Permits, and How to Avail of Tax Exemptions for Cooperative Housing** lists down the different legal and documentary requirements that regulate the project and how these can be secured by the cooperative. A section on taxation explains how a cooperative involved in socialized housing may avail of tax exemptions.

Finally, Volume Six on **Constructing Co-op Housing: A Guide on Construction Management of the Cooperative Housing Project** provides a layman discussion on the resource requirements, procedures, and tools needed during the construction phase of the project.

CHF hopes that these six volumes comprising the Manual on Cooperative Housing would serve as a valuable contribution towards the development of the cooperative housing movement in the Philippines.

Randall Sach
Country Director
CHF Philippines

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CHF-Philippines would like to extend its sincerest gratitude to all people and institutions who have shared their knowledge, time, effort and patience in producing this manual. We would thus like to thank the following:

To the officers and staff of the National Housing Authority (NHA), our principal partner in the implementation of the Cooperative Development Program, especially to Ms. Evangelina Equipaje, Officer-in-Charge of NHA's Livelihood Development Department (LDD), and Ms. Aida de Guia, former LDD Manager.

To the resource persons who imparted their expertise and know-how during the National Conference on Cooperative Housing held in Cavite on December 2001, namely: Danilo Consuegra of the National Conferation of Cooperatives (NATCCO), Ruben Corpuz of the SLU-SVP Housing Cooperative, Marlyn Estrella of the Cooperative Development Authority (CDA), Anne Henderson of UHAB from New York, Rose Nartates of NHA, Gary Ramirez of Land Bank of the Philippines (LBP), Sarah Redoblado of Alterplan, Ricardo San Andres of the Department of Agrarian Reform (DAR), Robert Sheen of the Department of Environment and Natural Resources (DENR), and Rolando Teves of NHA.

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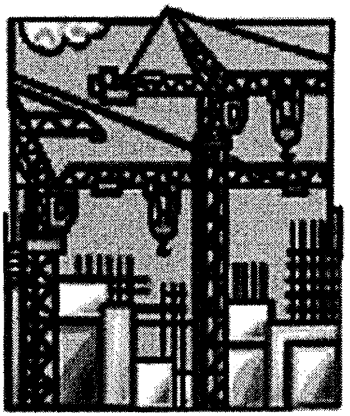
To the officers and staff of the Mines and Geosciences Bureau (MGB) and the Environmental Management Bureau (EMB) of DENR, for clarifying the department's environmental regulations.

To the pilots and other cooperatives of the Cooperative Development Program for inspiring us to produce this manual.

This manual also benefited greatly from the technical training on cooperative housing of the SEDCOP Program of NATCCO, Alterplan, and VICTO.

Lastly, this manual would not have been possible if not for the generous funding provided by the United States Agency for International Development (USAID).



INTRODUCTION

Why manage construction?

After the cooperative has been prepared organizationally to undertake the housing project, and after land has been acquired and all the documentary and financing requirements have been fulfilled, the cooperative may now proceed with the construction of the housing units.

Construction, by definition, refers to the setting up, alteration, and demolition of buildings, houses, roads, bridges, and other infrastructure. There are basically two kinds of construction work depending on the originator of the project.

Public construction is work done by government or state institutions while private construction refers to work done by private groups or

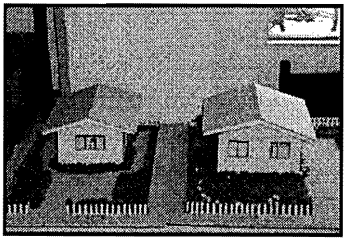
individuals. Sometimes, both government and the private sector undertake construction work through joint venture schemes.

Building Houses

In the cooperative housing project, construction is the physical development and realization of the cooperative's vision.

Aside from the actual construction of housing units, it involves land development, road construction, electrification, and the setting up of water and sewerage systems. It also involves the building of daycare centers, parks, clubhouses, marketplaces, or other facilities for service and socio-cultural and economic development.

These structures, however, may be constructed before or after the houses have been occupied by their rightful tenants, depending on the design of the cooperative community and the schedule of the construction work.



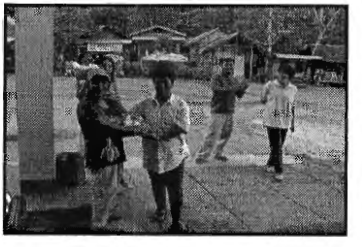
While construction is a definite phase or stage in the cooperative

housing project, construction management actually begins once the general membership of the cooperative ratifies the board's decision to build housing for its members.

Construction is a huge and complex task that consumes a long period of time. It is a relatively technical phase of cooperative housing and would thus necessarily entail the services of professionals such as engineers, foremen, and architects.

It is important therefore for the leaders and members of the cooperative to have a general idea and a firm grasp of what happens during construction. Such knowledge is important so that the cooperative may have a clear basis on how to maximize limited resources and what training or education must be conducted.

The purpose of construction management is to see the completion of the construction work, and to complete the work within a budget and specific timeframe.



Building a Community

Construction management must not be left in the hands of a few professionals contracted or hired by the cooperative. In the first place, it must remain a responsibility of the cooperative -- its directors and the general membership.

The cooperative must not forget that it is not simply building houses or homes, but a community. While housing primarily refers to the process of acquiring and constructing houses, there are other considerations that should be accounted for in order to make these houses relevant and contributive to the social, cultural and economic development of its tenants.

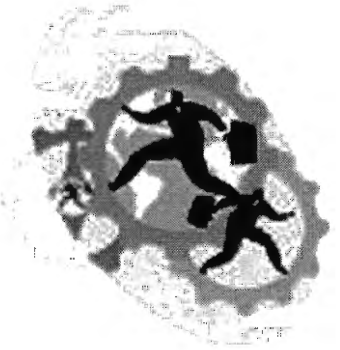
Construction is a multi-dimensional process that consolidates the physical, sociological, cultural, and economic requirements of the members of the cooperative. What are constructed are houses and a community that is appropriate to the total human development of the cooperative's members.

It is the responsibility of the leaders and members of the cooperative to ensure that construction work does not focus solely on quantity but on quality as well, starting from the planning stage, the actual construction, and up to the completion of the project.

The cooperative ensures that the final output of the construction phase of the cooperative housing project is a physical environment that touches on the very fabric of the community's life -- the day-to-day activities of the members and the complex web of relationships that bind them together.

It is therefore the purpose of this manual to explain the important functions and methodologies of management during each and every phase of the housing construction process.

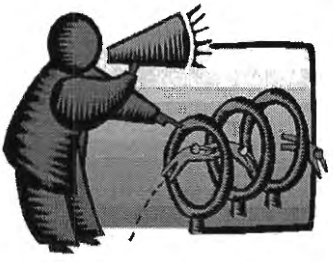
It is recommended that if there are any specific technical questions not covered by this manual, the cooperative should ask their members who are engineers and architects or their hired contractor.



Construction management has three integral component functions that guarantee the efficient administration and fast implementation of the whole construction process, namely, coordination and supervision, time and cost control, and quality control of work and keeping of records.

The cooperative may not be able to thoroughly manage the construction of the cooperative housing project especially on a daily basis since its leaders and members are busy with their personal jobs or the cooperative's other enterprises. It may even lack the necessary skills and know-how in the entire construction work.

It thus becomes imperative for the cooperative to employ full-time managers and supervisors to handle construction. Full-time managers and supervisors devote their entire time, focus and attention to the speedy but quality completion of the project.



What is Coordination and Supervision?

The target project in construction work involves tasks of considerable magnitude, and many actors inevitably play a part in this collaborative undertaking. The production process involves an architect, design or civil engineer, sanitary engineer, electrical engineer, accountant, suppliers,

warehousemen, electricians, carpenters, plumbers, and other laborers. It is the role of construction management to define and supervise the tasks of every actor in every phase of the construction work. It defines the methods and systems of construction so that these actors coordinate their work.

There are times when these actors are found among the members of the cooperative. For example, some members may be able to provide labor as part of the cooperative's "sweat equity" scheme. Architects and engineers may also be present within the cooperative.

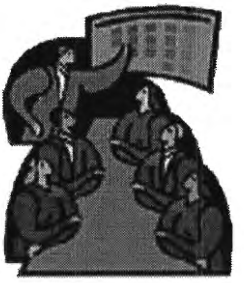
However in the case of professionals, it is important for the cooperative to first determine the availability and experience of such members in relation to the work at hand. If and when the cooperative decides to utilize the service of its own professionals, the membership must agree upon a policy of equitable compensation.

There are times when the cooperative decides to contract out construction work to a group of outside professionals. In this case, what the professionals in the cooperative can do is to explain to its members what goes into the construction process.

Coordination also means consultation of the construction team with the contractor, if there is any, and the cooperative's Board members. The construction team and its managers must always consult and give timely and appropriate recommendations with the member-beneficiaries, not only during the initial or planning stages of construction, but also during implementation.

Consultations are essential to analyze the actual situation in the field and to assess the different needs and adjustments which may arise during construction.

What is Time and Cost Control?



Housing construction works based on a defined income and timeframe. The cooperative and its construction team or contractor must be constantly aware of its financial capacity as well as the target date of completion of its work.

At the onset, construction management determines the program, plan and schedule of all construction activities and sees to it that these are properly monitored during execution.

PERT-CPM is a schedule of activities with corresponding work duration which serves as a guide to determine the status of development based on the approved schedule of works.

Workplans, architectural designs, and schedules are planning tools designed during the planning stage of the project. During implementation, these now serve as instruments for monitoring the progress of the construction work.

Management also prepares the PERT-CPM,or the Project Evaluation and Review Technique - Critical Path Method, and the Cash Flow from time to time.

It is the role of construction management to effectively utilize these instruments to minimize the unnecessary waste of resources and slippage or delays in the project.

What is Quality Control of Work and Keeping of Records?

It is extremely important that the production process always conform with the plans and other specifications determined during the planning stage of the cooperative housing project. Work done must be in accordance with sound and accepted construction practices as spelled out in several construction-related laws.

Construction management requires a day-to-day inspection of the project site so that a precise evaluation of the nature and status of the construction work is done in each stage of the project. It also regularly checks on the quality of the materials and equipment used, and whether they have been used, stored and handled properly.

Through frequent inspection, appropriate repairs and modifications are recommended and undertaken whenever necessary. When any work done is found to be not in accordance with the plans and specifications or with the contents of the agreement with the contractor, this may be stopped at any time.

Daily monitoring or inspection must always be recorded and all such records should be kept accordingly. These daily progress records or reports include the following:

- weather conditions
- manpower availability and distribution
- construction activities by phase
- materials delivered, checked and used
- equipment utilization
- work period
- correspondence or memoranda transmitted
- official visitors
- agreements or decisions made by the co-op
- observations or recommendations

Several documents must also be orderly filed in the field office in the site, as well as in the office of the cooperative, so that they may be pulled out easily whenever necessary. These include:

- Copy of the Contract Agreement
- Copy of Approved Plans and Specifications

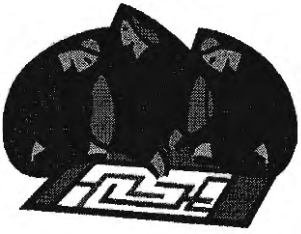
- Copies of Building Permits and Licenses
- Progress and Accomplishment Reports
- Change Orders
- Payments processed
- As-built Drawings and Information
- Maintenance and Operations Manuals of Equipment
- Certifications, guarantees, etc., for items furnished on the project

Construction is a step-by-step development process which can be broken down into three different phases or stages: the Definition phase, Planning phase, and the Implementation phase. Others term these stages as the Pre-Design Stage, Design Stage, and the Construction Stage.

What happens during the Definition Phase?

Several responsibilities are involved in this earliest phase of construction work. These are identifying project objectives, discussion of project management, drafting the work breakdown structure, and determining resource requirements. All of these are presumed to have been undertaken during the Definition and Feasibility Analysis stages of the cooperative housing project.

What happens during the Planning Phase?



Construction work during the Planning Phase involves such responsibilities as identifying project tasks, programming of the responsibility assignment matrix, resource management scheduling, and analysis of potential problems and opportunities. These responsibilities are done during the Project Planning stage of the cooperative housing project. (*Some of these have been discussed in the Manual on Managing Co-op Housing.*)

By definition, a design is a plan or solution resulting from a selective process. It is composed of elements arranged in a definite order or structure.

In construction, design usually refers to the architecture and the development plan of the houses and the entire cooperative community. During planning, it is not only the design of the houses and their facilities that are drawn, but also how and when this design may take its physical form.

What are the principles governing design?

Design should take into consideration such values as balance, harmony, contrast, rhythm, and proportion in order to achieve unity or wholeness in the design. The government, through several construction-related laws, has established minimum design standards for housing projects. However, these standards must only be used as final reference for acceptability of designs made.

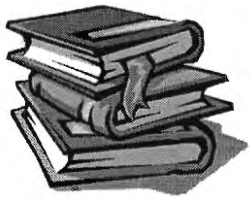
Some housing design principles that must be observed are:

1. Provision for adequate and habitable space
2. Appropriate and sensitive to the environment and climate
3. Considers the social and cultural particularities of residents

What are some of the laws that govern housing design and construction?

There are certain legal parameters which influence the plans and designs of the cooperative housing project. Among the most important

of which are **Presidential Decree 1096** or the **National Building Code** which provides guidelines and requirements for vertical and horizontal construction. It defines, for example, the access streets and roads that shall be built, electrical and sanitation requirements, and the type and height of structures in a particular area.



It also lists down the various permits and documents that must be secured before any construction can proceed. The same code provides for guidelines that must be observed during actual construction, such as, the protection of pedestrians and the placing of proper signs.

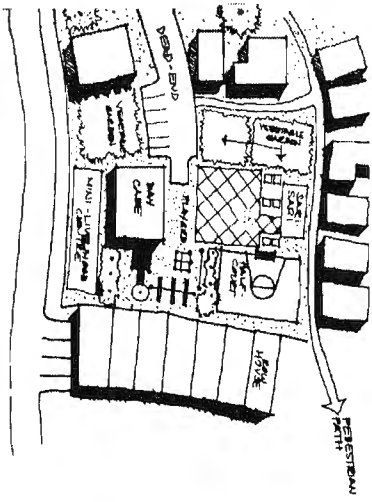
Another is the **Batas Pambansa 220** which establishes **Different Levels of Standards and Technical Requirements for Economic and Socialized Housing Projects in Urban and Rural Areas**. It defines the rules for application and approval of plans and building designs, as well as the registration and licensing of economic and socialized housing projects.

Presidential Decree 957 or the **Subdivision and Condominium Buyer's Protective Decree**, defines minimum design standards required for the construction of subdivisions and condominiums, and the rules for registration, licensing, and approval of subdivision and condominium projects.

It is also important to refer to the provisions of the Fire Code, Plumbing Code, and the Electrical Code, for the rules and requirements for such details of the construction plan.

How do we design the housing project?

Preliminary designs or conceptual studies of development plans can be made while the comprehensive engineering survey of the site is ongoing. These will allow members of the cooperative to choose



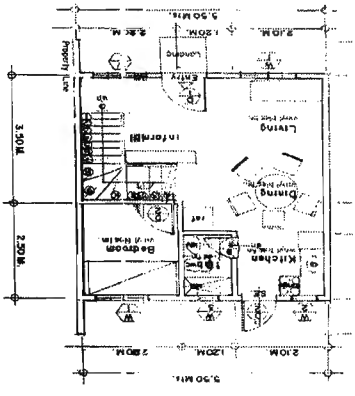
which among the various developmental options would suit their needs and preferences.

The initial land use plan made will graphically show the general allocation of areas for various uses such as residential zones, communal spaces, pedestrian walkways and road layouts, commercial facilities, and others. Preliminary house designs are also made to show different types of finishes, floor layout, and scales.

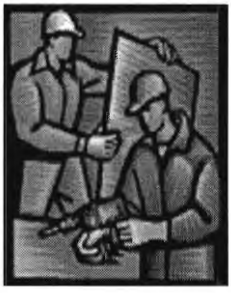
All preliminary designs shall be reviewed and discussed by the various groups involved in the construction process, most importantly, the members of the cooperative and the project's residents. Comments of the members and the cooperative's actual resource capability are essential in drawing out the final designs.

The final design documents contain the complete, detailed, and comprehensive drawings illustrating the construction plan and their technical specifications. These include architectural plans and the civil, structural, electrical, and sanitary engineering drawings.

These documents are the contract documents that will later be provided to contractors who may wish to tender bids for construction of the project, if and when the co-op decides to contract out construction work. They contain the exact scope of work from which the contractor may base their bids.



How do we organize the construction team?

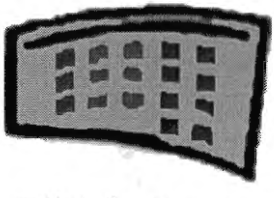


Selecting and assembling the appropriate people that will be involved in construction is essential to the success of the cooperative housing project. During planning, we are required to form the responsibility assignment matrix which delineates the tasks and responsibilities of different people.

If the cooperative decides to contract out construction work, the contractor hired has its own set of professionals and laborers that will handle the different tasks during construction. However, the cooperative may still organize the management of the whole construction in such a way that it is not left entirely in the hands of the contractor.

Board directors or selected members of the cooperative can be assigned and be made responsible to work closely with the contractor in construction management and in the formation of the construction or development teams.

The existing organization of the construction team is not a closed structure. Once the team is assembled, some people may still be taken in. Certain people may be needed depending on the requirements that may arise during specific situations.



Do we need a responsibility assignment matrix?

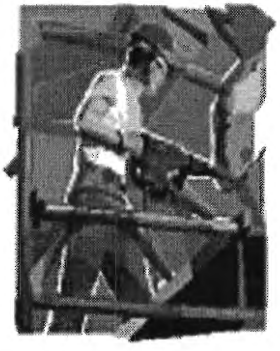
Forming a responsibility assignment matrix will help the co-op anticipate what type of person is required for a particular task. At the same time, it helps in ensuring that the construction's logical sequence is followed.

The matrix defines the specific roles and tasks of every actor, as well as that of management, in every stage of construction. The same matrix may also contain the resource requirements for every task in the construction process. These requirements include the type and amount of material that will be used and the various kinds of equipment necessary to form the task's expected output.

Such a matrix will prove useful in guiding the cooperative into the various technical work that goes into construction. It also serves as an effective guide for ensuring that production work proceeds on schedule and efficiently utilizes whatever resources are available.

RESPONSIBILITY ASSIGNMENT MATRIX

Activity	Time Frame	Materials or Equipment Needed	Quantity	Person/s Responsible



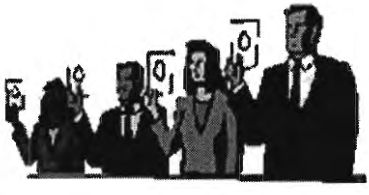
What happens during the Implementation Phase?

The Implementation Phase is the stage where the cooperative's housing project vision becomes a physical reality. Based on experiences of cooperatives in different parts of the world, there are different approaches to the construction process of the cooperative housing project.

In countries where the cooperative housing movement is well developed, there are **Technical Service Organizations** or **TSOs** which assist cooperatives in the whole development process from definition to planning and ultimately, the implementation or the actual construction of the housing units. However, in the Philippines, there are hardly any TSOs. At present, government through the NHA and a few NGOs assist cooperatives in the planning, financing, and construction of the housing project.

Because of this situation and the technical character of construction work, some cooperatives choose to employ architects and engineers, or a contractor to develop and construct the housing project. In this case, the contractor becomes a principal player during the construction stage of the cooperative housing process. It performs actual construction work, in accordance with plans and specifications prepared by the cooperative and its architect. It is also tasked to finish its work based on the agreement reached with the cooperative in relation to time, resources, and other factors.

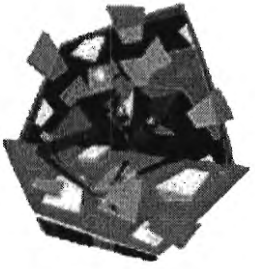
How do we select the best contractor for the project?



The selection of the contractor that will construct the cooperative housing project involves a process called **bidding**. There are standard bidding procedures adopted both by government and the private sector that must be observed by cooperatives.

Pre-qualification is conducted to simplify the bidding process by allowing only qualified contractors to submit bids. However, a small number of bidders may be disadvantageous for the cooperative. Because the bidders have been limited, the winning bid may not be lowest possible price or the winning bidder may not be the best contractor for the job.

How does the bidding process work?



To select the contractor, the cooperative observes the following bidding procedure:

1. **Preparation of Bid Documents** – Prior to bidding of the project, it is necessary to prepare all documents and plans that will describe the project in detail and the corresponding specifications.

Bid documents should include, but not limited to, the following:

- Complete Engineering Plans
- Project Cost Estimates
- PERT-CPM
- General Provisions
- Special Provision
- Technical Specifications

2. **Advertisement of Project** – Once the bid documents are prepared, the project is now ready for advertisement. The purpose of which is to attract interested bidders or contractors for the development of the project. The advertisement is made at least three (3) times within a reasonable period depending upon the project's size and complexity, but in no case less than two (2) weeks, in at least two (2) newspapers of general circulation which have been regularly published for at least two (2) years before the date of issuance of the notice. Announcements are also posted at conspicuous places in certain offices, agencies, or corporations.

3. **Pre-Qualifications of Prospective Bidders** – After interested bidders or contractors have submitted the Pre-C document or the Contractor's Confidential Pre-Qualification Statement for the

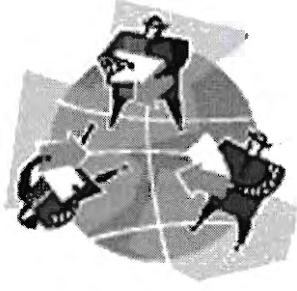
Project, they are evaluated by the Pre-Qualification, Bid and Awards Committee (PBAC) of the cooperative, whether they qualify or not in the bidding process. Pre-qualification is done to evaluate the contractor's capability in carrying out the project. The Pre-C must not be submitted later than the deadline set in the advertisement, after which date, no Pre-C shall be submitted and received.

4. **Pre-Bid Conference** – This conference attended only by qualified bidders is usually conducted prior to the actual bidding. During the conference, all possible questions and clarifications pertaining to the project raised by the qualified bidders are properly answered.

5. **Bid Opening** – Bids in the prescribed bid form are submitted to the PBAC in a sealed envelop written on top of it are the name of the project to be bid and the name of the bidder. This shall be marked with "*Do not open before (date and time of opening of bids)*".

A bid which does not comply with the conditions and requirements of the bid documents must be rejected by the PBAC. The reason for rejecting a bid must be properly given.

At the time of the opening of the bids, there must have been at least two (2) competing bidders. In case that there is only one bidder, the bid is returned unopened and the project is advertised again for bidding. Recording and evaluation of bids follow.



In the evaluation of bids, the agency reserves the right to waive the consideration of minor deviations in the bids received which do not affect the substance and validity of the bids.

When do we award the contract?

Bidding is a highly competitive process where the cooperative tries to meet the contract requirements at the lowest possible cost. However, the lowest bid is not necessarily the best bid. It is advisable to look into other factors like track record, available equipment, personnel, and the amount of time they can finish the project.

The decision on the results of the bid evaluation is normally done within 30 calendar days from the date of completion of the evaluation. The Notice of Award is issued within seven (7) calendar days from the date the decision to award was made.

What are the documents needed for the contract?

The contractor is now responsible to complete the contract documents for contract approval. Some of these documents include the following:

- Contract Agreement
- Drawing, Plans and Specifications
- Performance Security
- Pre-Qualification Statements
- Credit Line issued by an authorized bank
- Notice of Award of Contract and Contractor's Conforme
- Duly approved Program of Work and Cost Estimates
- Certificate of Availability of Funds
- Approved Agency Estimates
- Resolution of PBAC
- Approval of Award by approving authority

A Contract Agreement is signed within 30 days, otherwise the project is awarded to the next qualified bidder. This Contract Agreement is one

of the most important document that should be kept by the cooperative. This document contains, among others, clearly stipulated roles of the contractor, total amounts, scope of work, and plan specifications.

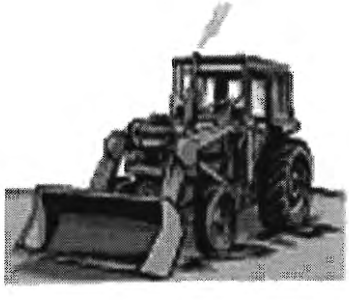
Do we require the contractor to post a bond?

To guarantee faithful performance, the contractor posts a performance bond the amount of which is determined by the cooperative, but is usually equivalent to around ten (10) percent of contract price.

What happens during actual construction?

A Notice to Proceed is then given to the winning bidder after the Notice of Award has been given and the contractor is ready to start the project.

While the work is in progress, there must be a daily and/or monthly accomplishment report indicating the items worked upon during the previous and current period. This report is important for checking slippage or whether the project is behind schedule or not.



An adjustment or extension on the contract time can be made due to a fortuitous incident such as bad weather. However if there is too much slippage, the cooperative may decide to terminate the existing contract with the contractor and the project is then awarded to a new contractor.

Payments to the contractor are usually made based on the accomplishment as per contract requirements. Final payment is made only when the project has been satisfactorily completed and final quantification has been made.

During actual construction, there may be changes in the volume or quantity of supplies and materials used in relation to what has been previously planned and thus resulting into what is called variation orders. These decrease or increase in quantities, or reclassification of items are resorted to when there is a change in plans, design or alignment in order to suit the actual field conditions. They are also resorted to when there exist a great disparity between the pre-construction plans used for purposes of bidding and the so-called "as-staked" plans or the construction drawings prepared after a joint survey by the contractor and the cooperative.

MONTHLY ACCOMPLISHMENT ABSTRACT FORM

Item Description	Accomplishment			As Per Program
	Previous	This Period	To Date	

*slippage: Actual (%) vs Programmed (%)

(+) Advanced Schedule
(-) Behind Schedule

What do we do when the houses are built?

In case the cooperative hires a contractor, construction work is completed when the contractor submits a formal document or a Project Completion Report to the cooperative. But if the cooperative undertook construction work on its own, the Project Completion Report is made by the cooperative. This report includes final quantification, variation orders made, and final as-built plans. This report is useful in determining how the project shall be maintained and if there are any repairs that must be made.

Management first inspects each completed unit and evaluates its conformity with the laid-out plans before actual occupancy. It is advisable to prohibit occupancy until all repairs or remedial work have been made.

Finally an Acceptance Report is prepared upon project acceptance and a guaranty or maintenance bond is posted to shoulder any repair work.

After the housing project has been thoroughly inspected, the cooperative now prepares to deliver the completed housing units to their respective residents. Estate management now becomes the next responsibility of the cooperative.

Appendix

PLANNING AND DESIGN STANDARDS FOR A RESIDENTIAL SUBDIVISION PROJECT UNDER BP 220

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
1. Maximum Selling Price	P 500,000	P 180,000 An approved socialized housing project shall not be upgraded to any other type of housing project.
2. Project Location	Within suitable areas for housing and outside potential hazard prone and protection areas.	
3. Land Allocation for Projects 1 Hectare and Above		
a. Saleable Area	a. Variable	
b. Non-saleable Area	b. See open space requirement as per b.1, b.2, and b.3 Mandatory allocation for parks and playgrounds per tabulation below:	

PARAMETERS	ECONOMIC HOUSING		SOCIALIZED HOUSING	
b.1. Area for Parks and Playgrounds for Projects 1 Hectare and Above	Density (No. of Lots or Dwelling Units per Hectare)	% of Gross Area for Parks and Play-grounds	Density (No. of Lots or Dwelling Units per Hectare)	% of Gross Area for Parks and Play-grounds
	100 & below	3.5	150 & below	3.5
	101 - 120	4.0	151 - 160	4.0
	121 - 130	5.0	161 - 175	5.0
	131 - 140	6.0	176 - 200	6.0
	141 - 150	7.0	201 - 225	7.0
	above 150	9.0	above 225	9.0
			An addition of 1% increment for every 10 or fraction thereof above 225.	
	In no case shall an area allocated for parks and playgrounds be less than 100 square meters. The same shall be strategically located within the subdivision project.			
b.2. Area for Community Facilities	Mandatory provision of area for neighborhood multi-purpose center both for economic and socialized housing projects with area of 1 hectare and above. These areas are non-saleable. However, the developer may provide areas for community facilities such as schools and convenience/retail centers in excess of mandatory requirement set forth in this			

PARAMETERS	ECONOMIC HOUSING		SOCIALIZED HOUSING	
b.2. Area for Community Facilities	rule which is deemed saleable. The use of the said area shall be indicated in the plan and annotated in the title thereto.			
	Density (No. of Lots or Dwelling Units per Hectare)	% of Gross Area for Community Facilities	Density (No. of Lots or Dwelling Units per Hectare)	% of Gross Area for Community Facilities
	100 & below	1.0	150 & below	1.0
	101 - 150	1.5	151 - 225	1.5
	above 150	2.0	above 225	2.0
b.3. Circulation System	Observe hierarchy of roads			
4. Minimum Lot Areas				
a. Single Detached	72 sq.m.		64 sq.m.	
b. Duplex/Single Attached	54 sq.m.		48 sq.m.	
c. Rowhouse	36 sq.m.		32 sq.m.	
	Saleable lots designated as duplex/single attached and/or rowhouse lots shall be provided with housing components. Price of saleable lots intended for single-detached units shall not exceed 40% of the maximum selling price for house and lot package.			

PARAMETERS	ECONOMIC HOUSING			SOCIALIZED HOUSING		
5. Minimum Lot Frontage						
5.1. Single Detached						
a. Corner Lot	8 m.					
b. Regular Lot	8 m.					
c. Irregular Lot	4 m.					
d. Interior Lot	3 m.					
5.2. Single Attached/Duplex	6 m.					
5.3. Rowhouse	4 m.					
6. Length of Block	Maximum length of block is 400 meters. However blocks exceeding 250 meters shall be provided with a 3 meter pathwalk/alley approximately at midlength.					
7. Road Right-of-Way						
Project Size and Range	Major (m)	Collector (m)	Minor (m)	Major (m)	Collector (m)	Minor (m)
2.5 has. and below	8	-	6.5	8	-	6.5
above 2.5 - 5 has.	10	-	6.5	10	-	6.5
above 5 - 10 has.	10	8	6.5	10	8	6.5
above 10 - 15 has.	10	8	6.5	10	8	6.5
above 15 - 30 has.	12	8	6.5	10	8	6.5
above 30 has.	15	10	6.5	12	10	6.5

PARAMETERS	ECONOMIC HOUSING		SOCIALIZED HOUSING	
7. Road Right-of-Way				
	ROW	Carriageway	ROW	Carriageway
Motor Court	6	5	6	5
Alley	3	-	-	-
Pathwalk	-	-	3	-

The minimum right-of-way of major roads shall be in accordance with the preceding table. It shall have a 15 centimeter mix gravel (pit run) basecourse on well compacted subgrade.

Major roads shall maintain a uniform width of road right-of-way. Tapering of road width shall not be allowed where the road right-of-way is wider than the prescribed standard for the interconnecting road of the proposed subdivision.

Minor road shall have a minimum right-of-way of 6.50 meters.

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
8. Road Specifications		
8.1. Planting Strip (PS) Sidewalk (SW)		
ROW	PS SW	
15.0 m	1.30 m. 1.20 m.	
12.0 m	0.80 m. 1.20 m.	
10.0 m	0.80 m. 1.20 m.	
8.0 m	0.40 m. 0.60 m.	
6.5 m	optional 0.50 m.	
8.2 Road Pavement		
Major	Concrete/Asphalt	
Minor	Concrete/Asphalt	
Motor Court	Macadam	
Sidewalk	Macadam	
Pathwalk/Alley	Macadam	
	Concrete road pavement shall have a minimum thickness of 150 millimeters and a minimum compressive strength of 20.7 MPa at 28 days. Asphalt pavement shall have a minimum thickness of 50 millimeters.	
9. Water Supply	Mandatory connection to appropriate public water system. Each subdivision shall have at least an operational deepwell and pump sets with sufficient capacity to provide ADD to all homeowners provided further that a spare pump and motor set is reserved. Water supply shall be potable and adequate.	

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
9.1. Minimum Water Supply Requirement	150 liters per capita per day per household connection.	
9.2. Fire Protection Demand	Provision for fire protection facilities shall comply with the requirements of the Fire Code.	
10. Electrical Power Supply	Mandatory individual household connection to primary and alternate sources of power if services are available in the locality. Mandatory provision of street lighting per pole if 50 meter distance; at every other pole, if the distance is less than 50 meters. Electric bills shall be proportionately shouldered by the users prior to issuance of COC and turn over of space to LGU. Installation practices, materials and fixtures used shall be in accordance with the provision of the Philippine Electrical Code and local utility company.	

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
11. Drainage System	The drainage system shall be made of concrete lined canal with adequate capacity and with load bearing. The drainage system must conform with the natural drainage pattern of the subdivision site, and shall drain into appropriate water bodies, public drainage system or natural outfalls. If applicable, underground drainage system shall be provided with adequate reinforced concrete pipes (RCP), catch basins, manholes/inlets and cross drain for efficient maintenance. Minimum drainage pipe diameter shall be 300 millimeters.	
12. Sewage Disposal System		
Septic Tank	Individual septic tanks, and construction thereof, shall conform to standards and design of the Sanitation Code of the Phils.	
Connection to Community Sewer System	Whenever applicable, connection shall be made to an approved public or community sewer system subject to the requirements and provisions of the Sanitation Code of the Philippines and other applicable rules and regulations.	

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
13. Garbage Disposal System	Provide sanitary and efficient refuse collection and disposal system whether independently ot in conjunction with the local government collection and disposal services.	
14. Shelter Component 14.1. Minimum Floor Area a. Single Detached b. Single Attached/ Duplex c. Rowhouse	22 sq.m. 22 sq.m. 22 sq.m.	18 sq.m. 18 sq.m. 18 sq.m.
	Mandatory provision of firewall for duplexes/single-attached units and at every unit for rowhouses. The number of rowhouses shall not exceed 20 units per block/cluster but in no case shall this be more than 100 meters in length.	
14.2. Minimum Level of Completion a. Single Detached b. Single Attached/ Duplex	Complete house (Based on the submitted specifications) same	Shell house (with doors and windows to enclose the unit) same

PARAMETERS	ECONOMIC HOUSING	SOCIALIZED HOUSING
c. Rowhouse	same	same Structural design shall consider provision future provision of loft.
15. Setback/Yard a. Front Setback b. Side yard c. Rear yard d. Abutments	 1.5 m. 1.5 m. (from the building line) 2.0 m. May be allowed per requirement of the National Building Code	

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CHF International serves as a catalyst for long-lasting positive change in low and moderate income communities around the world, helping to improve their housing, economic circumstances, and environments. It works with a wide range of organizations to develop systems, policies, and practices that increase access to affordable housing, community services and finance. It believes that safe and affordable housing is the foundation upon which families can build a livelihood, a healthy community, and a peaceful, democratic society.

In the Philippines, CHF is working with the National Housing Authority to promote cooperative housing. It also provides technical assistance to 3 pilot cooperatives whose housing projects are already under construction.