Build Change Training Modules

Build Earthquake Resistant Houses
Change Construction Practice Permanently



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Foundation Training

1 day 15-50 Participants 8.00 am - 5pm Difficulty: Easy / Non technical

This highly engaging training introduces participants to the key requirements of Earthquake Resistant Design and Construction by studying the Build Change construction Minimum Standards.

Beginning with an introduction into the origin and danger of past and future earthquakes, this course will deliver a global overview of construction good practice, perfectly matched for homeowners and community members with no technical background.

Participants partake in both Seminar and practical work and are provided with resources that will continue to assist them long after training.

Classroom Seminar:

8.00 am	Opening.
8.15 am	Evaluation Construction Quiz.
8.45 am	The origin and effects of earthquakes.
9.15 am	Common damage/Structure Types.
10.00am	Break.
10.15 am	"Foundation" earthquake resistant minimum standards.
12.00 am	Lunch.

Practical Training:

1.00 pm	Bar bending stirrup and overlap practical introduction.
2.00pm	Concrete and mortar mix practical introduction.
3.00 pm	Bricklaying Practical introduction.
4.00 pm	Post training Construction quiz.
4.30 pm	Discussion and close.
5.00 pm	End of day training.

Construction materials.

Description	Qty	Unit
Iron Bar diameter 10mm, 12m, SNI KSTI	2	bars
Iron Bar diameter 6mm, 12m,SNI	3	bars
Wire	1	kg
Cement type I	1	bags
Cement PPC	1	bags
Sand	0.2	m3
Gravel (split)	0.1	m3
Wood 2/20	5	meter
Wood 5/7	5	meter
String	1	pcs
Nails 2"	0.5	kg
Bricks	100	pcs

Tools.

Description	Qty	Unit
String	1	Pcs
Shovel	3	Pcs
Trowel	6	Pcs
Saw	3	Pcs
Big Iron cutter	1	Pcs
Iron key diameter 10mm	1	Pcs
Iron key diameter 6	1	Pcs
Bucket	18	Pcs
Wood 5/10, 2 meter, for Barbending Mold	3	Pcs
Wire snip	6	Pcs
Big Bucket	3	Pcs
Hammer	2	Pcs
Carpenter's square	3	Pcs
Leveling	3	Pcs

Resources.

Description	Qty	Unit/Participants
BC Booklet	1	Pcs/Participants
Barbending "L"	1	Pcs/Participants
Barbending "T"	1	Pcs/Participants
Line Blocks	1	Pcs/Participants
Note Books	1	Pcs/Participants
Gloves	1	Pair/Participants
Mask	1	Pcs/Participants



Opening:

Before training, adequate seating arrangements are made, usually in a semi circle or with each line of participant tables slightly angled towards the centre to help interactiveness and the free roaming of the presenter.

After seating, Opening speeches are delivered first by the contracting agency or participating authority then by Build Change.

Opening is usually conducted by the most senior staff present.

Indications:

- Appreciation for Agency and/or Local Authority.
- Appreciation for Participants.
- Introduction of the Build Change team (name).
- Explanation of the training schedule (inc. breaks and lunch).
- Introduction to the resources already provided. (pre-positioned on chair).
- Introduction of the first Activity.



Evaluation construction quiz:

Once a pre-evaluation quiz has been distributed to each participant, the MONEV officer in charge will provide a brief explanation on how to effectively complete the quiz.

As accurate test results are essential to gage the effectiveness of each training, there are two practised approaches which may help avoid cheating or lack of interest.

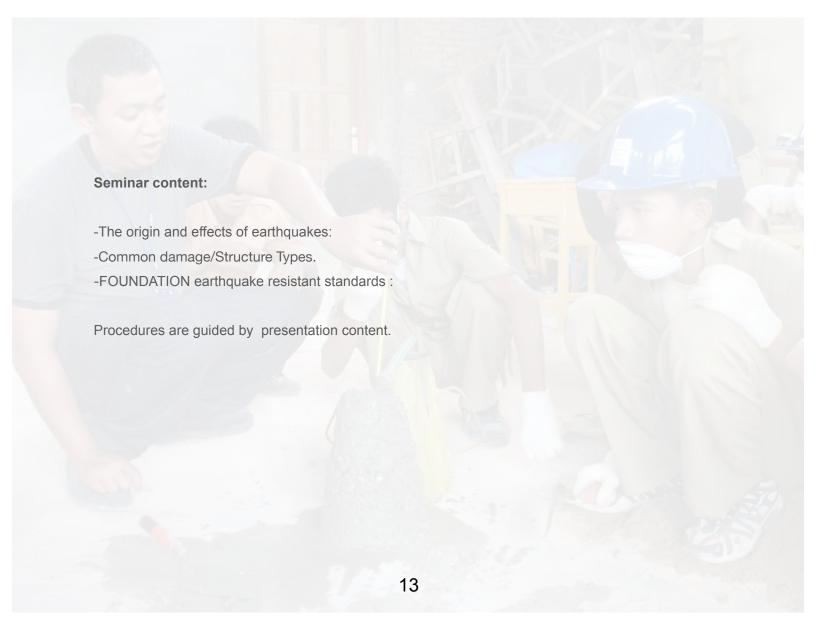
- 1. Competition: A prize of moderate value (football, basketball etc.) is offered for those who achieve the highest score. This prize is shown neatly wrapped at the beginning of the test. The reward is provided once tests have been corrected (whenever possible the same day). This approach may be effective for a younger audience.
- 2. Collaboration: Pressure is removed as much as possible by asking participants to honestly fill in only what they know, stating that, as they will be quizzed again after the training it is an exiting way to be able to see their knowledge improved. This approach may be effective for an older audience.

A maximum of 30 minutes is recommended for the test. Cutting the test short will not effect the test comparison as long as the same short period is respected for the post training quiz. Cutting short is recommended when the majority of the group have completed their test and people begin to get distracted.

Upon completion the MONEV officer will introduce the next presenter.

Evaluation Construction Quiz.





The origin and effects of earthquakes.



Common damage/Structure Types.







Practical bar bending procedure:

A brief activity introduction is given.

Each group will complete one arm of an "L" shape model (including column). The objective of this activity is to create a full scale bar bending model for it's posterior use as a demonstration tool.

Participants are divided into 3 groups and escorted to 3 different work areas to begin work. Each participant is encouraged to bend at least one stirrup (excess stirrups can be made).

Once group work is complete, all participants will come together to join arms into one full "L" model.

NOTE: On occasions supervisors may be required to take over participant's work in order to stay on schedule.

Bar bending stirrup and overlap practical introduction.



Concrete and mortar mix practical Guidelines:

A brief activity introduction is given. Participants are divided into 3 groups and escorted to 3 different work areas to begin work.

For added visual learning, each group will mix a 1:2:3 proportioned mix using 6 buckets, placing them all together before beginning the mix.

An explanation of good and bad mixes and a reminder of quality material will be given. The "concrete in hand" test will be made.

NOTE: A slump test is generally not recommended for our Foundation training, as more available methods may be a better priority. However, a slump test can be made if the training is conducted for participants with access to slump cones.

Concrete and mortar mix practical introduction.



Practical Bricklaying Guidelines.:

A brief activity introduction is given. Participants are divided into 3 groups and escorted to 3 different work areas to begin work.

Each group will lay the previously mixed concrete as a bed for the masonry to come. As half of the group mixes mortar and wets bricks, the other half assists the trainer in setting up profiles and string line on each end of the poured concrete.

An explanation of good and bad mixes and a reminder of quality material is given. Each participant is encouraged to lay at least 3 Bricks.

NOTE: As this is the last activity it can be made to match the schedule, lasting as much or as little as necessary. A stick bar is positioned in the last joint made.

Bricklaying Practical introduction.





Discussion and close.

The correct answers to the completed evaluation quiz are given in a discussion format, where trainers may answer final questions or provide additional clarifications. This is also a good opportunity to ask participants for general training feedback.

A brief closure speech is delivered first by Build Change then by the contracting agency or participating authority. Indications:

Appreciation for Agency and/or Local Authority.

Appreciation for Participants.

A brief revision of the days activities.

A reminder to use the Buid Change booklet for future reference.

A reminder to feel free to contact Build Change for any additional help (Technical assistance).

Introduction of the partner party for final closure.

Discussion and close.



Framework Training

3 day 30-50 Participants 8.00 am - 3.30pm Difficulty: Medium / Technical

This highly comprehensive training allows participants to study in detail the key requirements of Earthquake Resistant Design and Construction. Participants learn not only about the characteristics of these, but also how to apply them all practically, with both extended seminars and practical activities.

Beginning with an introduction into the origin and danger of past and future earthquakes, as well as a general overview of construction types and common damage, this course then goes on to offer a step by step study of earthquake resistant house construction methods, perfectly matched for high school students, community members with a technical background and agency staff seeking to improve their skills.

Participants partake in both Seminar and practical work and are provided with resources that will continue to assist them long after training.

Day 1

Classroom Seminar:

0.00 alli	Opening.
8.15 am	Evaluation Construction Quiz.
8.45 am	The origin and effects of earthquakes
9.15 am	Common damage/Structure Types.
9.45	Break.
10.00 am	"Framework" Earthquake resistant standards.

10.00 am "Framework" Earthquake resistant stand

12.00 am Lunch

1.00 pm Design based calculating of bills of quantity.

Practical Training:

2.30pm Batter board and site selection.

3.30 pm End of day training

Day 2 **Practical Training:** 8.00 am Stirrup and bar bending. 12.00 am Lunch Formwork and Concreting. 1.00 pm 3.30 pm End of day training Day 3 **Practical Training:** Masonry. (+ timber connections) 8.00 am 12.00 am Lunch Site and tool clean up. 1.00 pm 1.30 pm On site review and discussion. Post evaluation quiz. 2.30 pm Close. 3.00 pm 3.30 pm End of day training

Construction materials.

Description	Qty	Unit
Iron Bar diameter 10mm, 12m, SNI KSTI	13	bars
Iron Bar diameter 6mm, 12m,SNI	12	bars
Wire	4	kg
Cement type I	4	bags
Cement PPC	4	bags
Sand	1	m3
Gravel (split)	0.5	m3
Wood 2,5/20, good quality	64	meter
Wood 4/6, good quality	32	meter
Wood 5/10, good quality	5	meter
Nails 2"	4	kg
Bricks	600	pcs

Tools.

String 8 roll Shovel 8 Pcs Hoe 8 Pcs Trowel 16 Pcs Saw 16 Pcs Big Iron cutter 4 Pcs Iron key diameter 10mm 8 Pcs Iron key diameter 6 8 Pcs Bucket 48 Pcs	Description	Qty	Unit
Hoe 8 Pcs Trowel 16 Pcs Saw 16 Pcs Big Iron cutter 4 Pcs Iron key diameter 10mm 8 Pcs Iron key diameter 6 8 Pcs	String	8	roll
Trowel 16 Pcs Saw 16 Pcs Big Iron cutter 4 Pcs Iron key diameter 10mm 8 Pcs Iron key diameter 6 8 Pcs	Shovel	8	Pcs
Saw 16 Pcs Big Iron cutter 4 Pcs Iron key diameter 10mm 8 Pcs Iron key diameter 6 8 Pcs	Hoe	8	Pcs
Big Iron cutter 4 Pcs Iron key diameter 10mm 8 Pcs Iron key diameter 6 8 Pcs	Trowel	16	Pcs
Iron key diameter 10mm8PcsIron key diameter 68Pcs		16	Pcs
Iron key diameter 6 Pcs		4	Pcs
	Iron key diameter 10mm	8	Pcs
Bucket 48 Pcs	Iron key diameter 6	8	Pcs
240101	Bucket	48	Pcs
Wood 5/10, 2 meter, for Barbending Mold 8 Pcs	Wood 5/10, 2 meter, for Barbending Mold	8	Pcs
Wire snip 16 Pcs		16	Pcs
Big Bucket 8 Pcs	Big Bucket	8	Pcs
Slum test cone 4 Pcs	Slum test cone	4	Pcs
Barbending mold, 10 mm 8 Pcs		8	Pcs
Barbending mold, 6 mm 8 Pcs	Barbending mold, 6 mm	8	Pcs
Chisel 8 Pcs	Chisel	8	Pcs
Hammer 16 Pcs	Hammer	16	Pcs
Carpenter's square 16 Pcs	Carpenter's square	16	Pcs
Leveling 8 Pcs	Leveling	8	Pcs

Resources.

Description	Qty	Unit/Participants
BC Booklet	1	Pcs/Participants Pcs/Participants
Barbending "L" Barbending "T"	1	Pcs/Participants
Line Blocks	1	Pcs/Participants Pcs/Participants
Bag Note Books	1	Pcs/Participants
Gloves Helmet	2	Pair/Participants Pcs/Participants
First Aid Kit	1	Pcs/Participants
Mask	5	Pcs/Participants



Opening:

Before training, adequate seating arrangements are made, usually in a semi circle or with each line of participant tables slightly angled towards the center to help interactiveness and the free roaming of the presenter.

After seating, Opening speeches are delivered first by the contracting agency or participating authority then by Build Change.

Opening is usually conducted by the most senior staff present.

Indications:

- Appreciation for Agency and/or Local Authority.
- Appreciation for Participants.
- Introduction of the Build Change team (name only).
- Explanation of the training schedule (inc. breaks and lunch).
- Introduction to the resources already provided. (pre-positioned on chair).
- Introduction of the first Activity.



Evaluation construction quiz:

Once a pre-evaluation quiz has been distributed to each participant, the MONEV officer in charge will provide a brief explanation on how to effectively complete the quiz.

As accurate test results are essential to gage the effectiveness of each training, there are two practised approaches which may help avoid cheating or lack of interest.

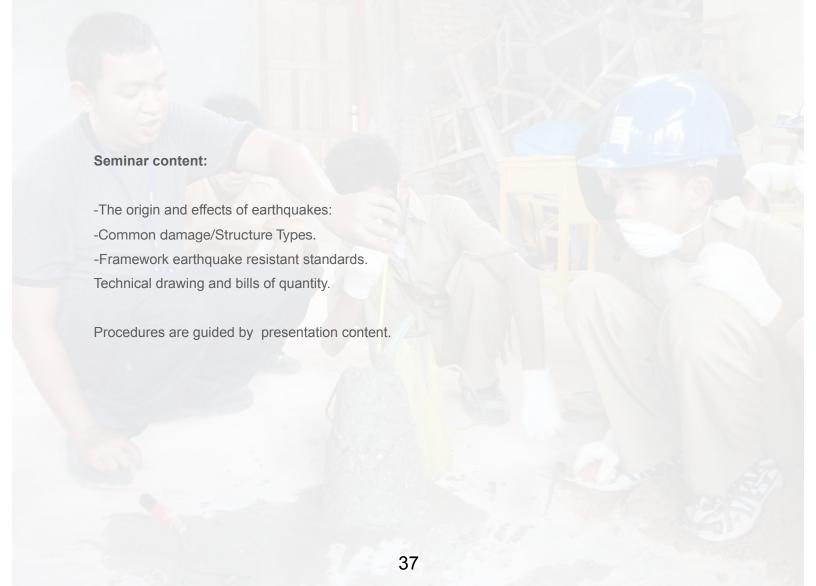
- 1. Competition: A prize of moderate value (football, basketball etc.) is offered for those who achieve the highest score. This prize is shown neatly wrapped at the beginning of the test. The reward is provided once tests have been corrected (whenever possible the same day). This approach may be effective for a younger audience.
- 2. Collaboration: Pressure is removed as much as possible by asking participants to honestly fill in only what they know, stating that, as they will be quizzed again after the training it is an exiting way to be able to see their knowledge improved. This approach may be effective for an older audience.

A maximum of 30 minutes is recommended for the test. Cutting the test short will not effect the test comparison as long as the same short period is respected for the post training quiz. Cutting short is recommended when the majority of the group have completed their test and people begin to get distracted.

Upon completion the MONEV officer will introduce the next presenter.

Evaluation Construction Quiz.





The origin and effects of earthquakes.



Common damage/Structure Types.



"Foundation" earthquake resistant standards.



Bills of quantity.



Batter board and site selection:

A brief activity introduction is given. Participants are divided into 8 groups. They are told that they will form part of the group for the remaining of the training and to remember their group number. They are each provided with a toolbox with the tools they will need for the rest of the training.

Distribution of groups and their corresponding supervisors will remain the same for the whole training, and while not completely necessary for batter board, is essential for both bar bending and masonry.

Supervisor 1. groups 1 and 2.

Supervisor 2. groups 3 and 4.

Supervisor 3. groups 5 and 6.

Supervisor 4. groups 7 and 8.

Under the care of each supervisor, groups will create four 4x4 bow plank set ups, two groups working on each. Each individual group* will then take it in turns to measure and string for the foundations of a design provided.

One group will be responsible for making the line out for the ERDC structure to be worked on the following day. This area must be cleaned and made ready by idle hands.

Batterboard and site line out.



Stirrup and bar bending procedure:

A brief activity introduction is given.

Each group will complete a bar bending model (4 groups a T, 4 groups an L). The objective of this activity is to create the plinth beam and columns of a 3 x 3 ERDC structure.

Participants are divided into 8 groups and escorted to 8 different work areas to begin work using designs provided. Each group is provided with a toolbox with all tools needed for the activity and is aware of the group number.

One technical supervisor will oversee 2 groups, one will have an L and one will have a T. When group work is complete, all participants will come together to join models at the batter board location prepared the day before.

Groups will be put in place by number with each supervisor and his two groups working on a different side of the structure.

Each group will then be responsible for connecting to the model on their immediate right.

The training will end when the 3 x 3m plinth beam and 1 m columns are connected and in place.

Bar bending stirrup and overlap practical.



Formwork and concreting:

Participants are divided into 4 groups and escorted to 4 the different sides of the ERDC structure.

Formwork is prepared with each supervisor overseeing a side of the structure with his two groups.

NOTE: This is the only activity that may result in too many people for the task at hand. Supervisors are recommended, after the explanation, to delegate jobs to inactive participants, such as fetching and distributing the material needed for concreting.

NOTE 2: Spacers used are provided by the previous training.

Once formwork is in place, each supervisor provides an introduction to concreting for his two groups and the slump test will be conducted. Each group will initially mix a 1:2:3 proportioned mix using 6 buckets each, placing them all together before making the test. An explanation of good and bad mixes and a reminder of quality material will be given. The "concrete in hand" test will also be made.

Once groups are aware of the mix needed, they will begin filling the formwork of the structure. Each group will be responsible for concreting the formwork area on the immediate right of their bar bending model.

Activity will end when plinth has been poured and material cleaned.

Concrete and mortar mix practical.



Masonry (+timber connections) Guidelines:

A brief activity introduction is given. Participants are divided into 8 groups and escorted to the 8 work areas created by the columns of the previously poured ERDC structure. Groups* will be responsible for building a 5 brick by 15 brick masonry wall in their area, and each supervisor will oversee his original two groups working on the same side of the structure.

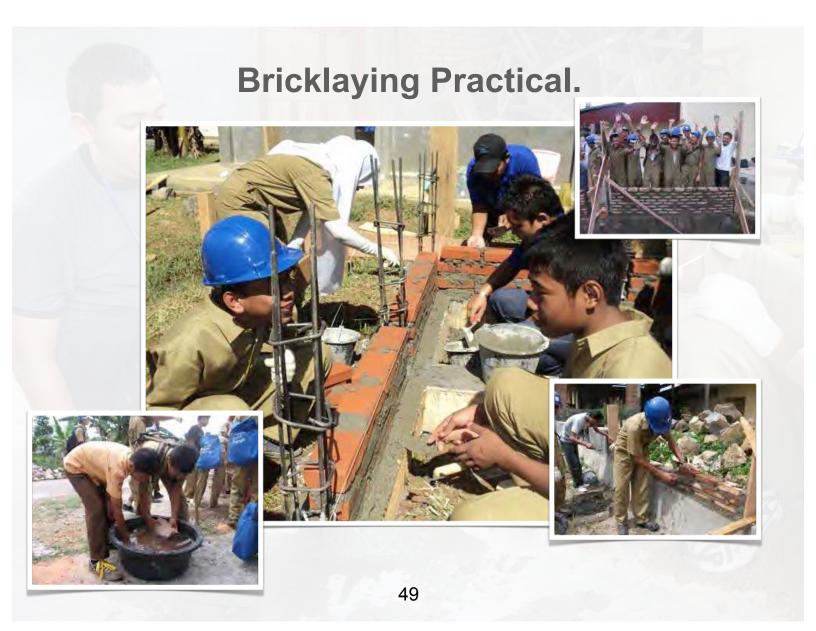
Soaking buckets and bricks will be strategically placed by participants to avoid impracticalities and mortar mixing will begin, each group with 4 buckets.

For speed and accuracy, it is generally recommended for supervisors to set the string line and mark the initial level for bricklaying. An explanation of how to do it can be made before starting to lay.

NOTE: Placing plumb profiles 1.5 meters from the structure and not directly on the corners will allow for a more accessible work area and less accidental knocking and subsequent complications.

Bricklaying height can be reduced according to time limitations, though 15 courses is readily achievable.

^{*}One of the 8 groups will build the door frame to the structure based on designs provided the supervisor. They will then install the door and build the necessary masonry around it. In practice, building the door and laying surrounding bricks takes the same time as the other group's building work. See drawings for further clarification.



On site review and discussion:

Before starting the post training evaluation quiz and ending the training, participants are joined together as one large group in a semicircle around the structure created. Supervisors then provide a review of the step by step process from batter board to ring beam height.

Both to heighten the mood and to ensure understanding, supervisors may shoot out questions to participants during this process, the rest of the group being able to answer if correct or not.

Upon completion, participants are led inside for the evaluation quiz.

On site review.



Post Evaluation construction quiz:

Once a post evaluation quiz has been distributed to each participant, the MONEV officer in charge will provide a brief reminder on how to effectively complete the quiz.

As accurate test results are essential to gage the effectiveness of each training, there are two practised approaches which may help avoid cheating or lack of interest.

- Competition: A prize of moderate value (football, basketball etc.) is offered for those who achieve the
 highest score. This prize is shown neatly wrapped at the beginning of the test. The reward is provided once
 tests have been corrected (whenever possible the same day). This approach may be effective for a
 younger audience.
- 2. Collaboration: Pressure is removed as much as possible by asking participants to honestly fill in only what they know, stating that, as they have answered the same quiz before the training, it is an exiting way to be able to see their knowledge improved. This approach may be effective for an older audience.

A maximum of 30 minutes is recommended for the test.

Upon completion the MONEV officer will introduce the closure.

Post training Construction quiz.



Discussion and close.

The correct answers to the completed evaluation quiz are given in a discussion format, where trainers may answer final questions or provide additional clarifications. This is also a good opportunity to ask participants for general training feedback.

A brief closure speech is delivered first by Build Change then by the contracting agency or participating authority.

Recommendations:

Appreciation for Agency and/or Local Authority.

Appreciation for Participants.

A brief revision of training activities.

A reminder to use the Build Change booklet for future reference.

A reminder to feel free to contact Build Change for any additional help (Technical assistance).

Introduction of the partner party for final closure.

Discussion and close.



Touchstone Training.

5 day 15- 25 Participants 8.00 am - 3.30pm Difficulty: Medium / Technical

As Build Change's flagship training, this module allows participants to not only study in detail the key requirements of ERDC, but to also receive enough background to actively become trainers in the subject. This training is best suited for NGO Staff and engineers that will be working in a training or supervisory capacity.

Beginning with a general introduction into the origin and danger of past and future earthquakes, as well as a general overview of construction types and common damage, this course then goes on to offer a step by step study of earthquake resistant house construction methods. Practical training accompanies each participant through the construction of an earthquake safe semipermanent house. All elements are practiced, from the site line out to the final plastering. Participants also receive training in communication skills and construction site safety.

Day 1

Classroom Seminar:

8.00 am	Opening.
8.15 am	Evaluation Construction Quiz.
8.45 am	The origin and effects of earthquakes
9.15 am	Common damage/Structure Types.
9.45	Break.
10.00 am	Touchstone standards. (-Semipermanent standards)
12.00 am	Lunch
	Practical Training:

1.00 pm On site soil screening.

2.30pm Batter board and site selection.

3.30 pm End of day training

Day 2

Practical Training:

8.00 am Stirrup and bar bending.

12.00 am Lunch

1.00 pm Formwork and Concreting.

3.30 pm End of day training

Day 3

Practical Training:

8.00 am Masonry

12.00 am Lunch

1.00 pm Pouring of columns.

2.30 pm Site and tool clean up.

3.00 pm Close.

3.30 pm End of day training

Day 4

Practical / Seminar Training:

8.00 am Semipermanent Minimum standards

9.00 am Timber joinery.

10.00 am Timber frame practical.

12.00 am Lunch

1.00 pm Plastering

3.30 pm End of day training

Day 5

Practical / Seminar Training:

8.00 am Calculating Bills of quantity.

10.00 am House Supervision / checklists.

1.00 pm Communication Skills.

2.30 pm Post evaluation quiz.

3.00 pm Close.

3.30 pm End of day training

Construction materials.

Description	Qty	Unit
Wood 2,5/20, good quality	48	meter
Wood 4/6, good quality	24	meter
Wood 5/7, good quality	12	meter
Wood 5/10, good quality	28	meter
Nails 1,5"	3	Kg
Nails 4"	2	Kg
Iron Bar diameter 10mm, 12m, SNI KSTI	13	bars
Iron Bar diameter 6mm, 12m,SNI	13	bars
Wire	4	Kg
Cement type I	4	bags
Cement PPC	5	bags
Sand	2	m3
Gravel (split)	0.5	m3
Plywood 6 mm (good quality)	5	рс
Bricks	450	Bh
Wire mesh	12	m2
Preservative paint	2	liter
Paint Brush 2"	8	pcs
Wood 10/10, good quality	9	meter

Tools.

Description	Qty	Unit
String	4	pcs
Shovel	4	Pcs
Hoe	4	Pcs
Trowel	8	Pcs
Saw	8	Pcs
Big Iron cutter	2	Pcs
Iron key diameter 10mm	4	Pcs
Iron key diameter 6	4	Pcs
Bucket	24	Pcs
Wood 5/10, 2 meter, for Barbending Mold	4	Pcs
Wire snip	8	Pcs
Big Bucket	4	Pcs
Slum test cone	4	Pcs
Barbending mold, 10 mm	4	Pcs
Barbending mold, 6 mm	4	Pcs
Chisel	8	Pcs
Hammer	8	Pcs
Carpenter's square	4	Pcs
Leveling	4	Pcs
Float	4	Pcs

Resources.

Description	Qty	Unit/Participants
BC Booklet	1	Pcs/Participants
Barbending "L"	1	Pcs/Participants
Barbending "T"	1	Pcs/Participants
Line Blocks	1	Pcs/Participants
Bag	1	Pcs/Participants
Note Books	1	Pcs/Participants
Gloves	2	Pair/Participants
Helmet	1	Pcs/Participants
First Aid Kit	1	Pcs/Participants
Mask	5	Pcs/Participants



Opening:

Before training, adequate seating arrangements are made, usually in a semi circle or with each line of participant tables slightly angled towards the center to help interactiveness and the free roaming of the presenter.

After seating, Opening speeches are delivered first by the contracting agency or participating authority then by Build Change.

Opening is usually conducted by the most senior staff present.

Indications:

- Appreciation for Agency and/or Local Authority.
- Appreciation for Participants.
- Introduction of the Build Change team (name only).
- Explanation of the training schedule (inc. breaks and lunch).
- Introduction to the resources already provided. (pre-positioned on chair).
- Introduction of the first Activity.



Evaluation construction quiz:

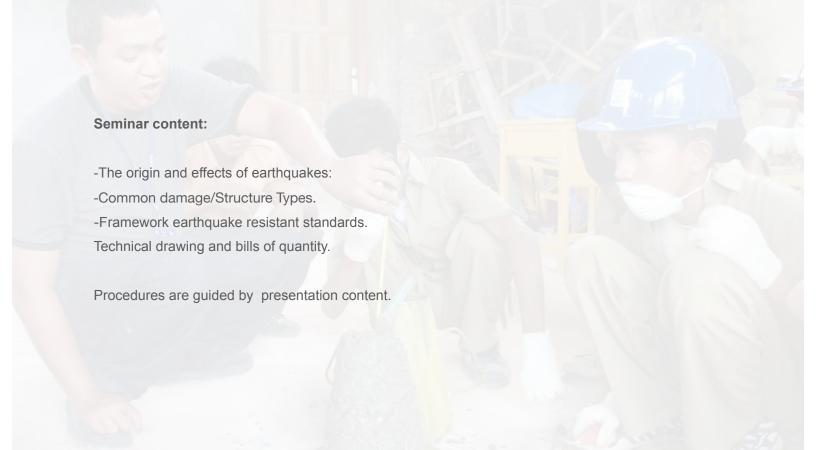
Once a pre-evaluation quiz has been distributed to each participant, the MONEV officer in charge will provide a brief explanation on how to effectively complete the quiz.

As accurate test results are essential to gage the effectiveness of each training, there are two practised approaches which may help avoid cheating or lack of interest.

- 1. Competition: A prize of moderate value (football, basketball etc.) is offered for those who achieve the highest score. This prize is shown neatly wrapped at the beginning of the test. The reward is provided once tests have been corrected (whenever possible the same day). This approach may be effective for a younger audience.
- 2. Collaboration: Pressure is removed as much as possible by asking participants to honestly fill in only what they know, stating that, as they will be quizzed again after the training it is an exiting way to be able to see their knowledge improved. This approach may be effective for an older audience.

A maximum of 30 minutes is recommended for the test. Cutting the test short will not effect the test comparison as long as the same short period is respected for the post training quiz. Cutting short is recommended when the majority of the group have completed their test and people begin to get distracted.

Upon completion the MONEV officer will introduce the next presenter.



The origin and effects of earthquakes.



Common damage/Structure Types.



Touchstone earthquake resistant standards.



Soil screening.

All participants will be taken to the working area. While many different soils may not be available to test, at least one test should be conducted on the land to be worked on.

Participants are divided into 8 groups. They are told that they will form part of the group for the remaining of the training and to remember their group number.

Distribution of groups and their corresponding supervisors will remain the same for the whole training, and while not completely necessary for batter board, is essential for both bar bending and masonry.

Supervisor 1. groups 1 and 2.

Supervisor 2. groups 3 and 4.

Supervisor 3. groups 5 and 6.

Supervisor 4. groups 7 and 8.

Each group will conduct the necessary tests to determine the soil type and condition under the supervision of a trainer, two groups to one supervisor.

Build Change may not be able to select the area to work in and soil condition may not adequate for building. Participants must be made aware of this, however the construction will need to go ahead (the Build Change structure model is small, light and aptly reinforced and can be built on softer soils in a worst case scenario.

Batter board and site selection:

A brief activity introduction is given. Each group is provided with a toolbox with the tools they will need for the rest of the training.

Under the care of each supervisor, groups will create four 4x4 bow plank set ups, two groups working on each. Each individual group will then take it in turns to measure and string for the foundations of a design provided.

One group will be responsible for making the line out for the ERDC structure to be worked on the following day. This area must be cleaned and made ready by idle hands.





Stirrup and bar bending procedure:

A brief activity introduction is given.

Each group will complete a barbending model (4 groups a T, 4 groups an L). The objective of this activity is to create the plinth beam and columns of a 3 x 3 ERDC structure.

Participants are divided into 8 groups and escorted to 8 different work areas to begin work using designs provided. Each group is provided with a toolbox with all tools needed for the activity and is aware of the group number.

One technical supervisor will oversee 2 groups, one will have an L and one will have a T. When group work is complete, all participants will come together to join models at the batter board location prepared the day before.

Groups will be put in place by number with each supervisor and his two groups working on a different side of the structure.

Each group will then be responsible for connecting to the model on their immediate right.

The training will end when the 3 x 3m plinth beam and 1 m columns are connected and in place.

Bar bending stirrup and overlap practical.



Formwork and concreting:

Participants are divided into 4 groups and escorted to 4 the different sides of the ERDC structure.

Formwork is prepared with each supervisor overseeing a side of the structure with his two groups.

NOTE: This is the only activity that may result in too many people for the task at hand. Supervisors are recommended, after the explanation, to delegate jobs to inactive participants, such as fetching and distributing the material needed for concreting.

NOTE 2: Spacers used are provided by the previous training.

Once formwork is in place, each supervisor provides an introduction to concreting for his two groups and the slump test will be conducted. Each group will initially mix a 1:2:3 proportioned mix using 6 buckets each, placing them all together before making the test. An explanation of good and bad mixes and a reminder of quality material will be given. The "concrete in hand" test will also be made.

Once groups are aware of the mix needed, they will begin filling the formwork of the structure. Each group will be responsible for concreting the formwork area on the immediate right of their bar bending model.

Activity will end when plinth has been poured and material cleaned.





Masonry Guidelines:

A brief activity introduction is given. Participants are divided into 8 groups and escorted to the 8 work areas created by the columns of the previously poured ERDC structure. Groups* will be responsible for building a 5 brick by 15 brick masonry wall in their area, and each supervisor will oversee his original two groups working on the same side of the structure.

Soaking buckets and bricks will be strategically placed by participants to avoid impracticalities and mortar mixing will begin, each group with 4 buckets.

For speed and accuracy, it is generally recommended for supervisors to set the string line and mark the initial level for bricklaying. An explanation of how to do it can be made before starting to lay.

NOTE: Placing plumb profiles 1.5 meters from the structure and not directly on the corners will allow for a more accessible work area and less accidental knocking and subsequent complications.

Bricklaying height can be reduced according to time limitations, though 10 courses is readily achievable and a good height of the soon to be semipermanent structure.

^{*}One of the 8 groups will build the door frame to the structure based on designs provided the supervisor. They will then install the door and build the necessary masonry around it. In practice, building the door and laying surrounding bricks takes the same time as the other group's building work. See drawings for further clarification.





Timber frame and connections:

Each group works independently on making a timber column to be placed upon the already poured and dried concrete columns. These will be tied to the extra steel protruding from the column that will now act as a footing.

Though working alone, groups will need to work together on occasions carving column connections on one piece of wood for the ring beam. This will require the coordination of technical supervisors. It is recommended that supervisors assist in the calculating of distances for this and aid in coordinating (some groups may be slower than others).

Each group will be responsible for it's own column's diagonal bracing.



Plastering: Each 2 groups under a supervisor will work together to build the temporary plastering mould, two on each side of the structure. Each group will then individually focus on the area to be plastered between their column and the one two the nearest right. Part of the group will mix cement while the other half plasters these will then switch.

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On site review and discussion:

Before starting the post training evaluation quiz and ending the training, participants are joined together as one large group in a semicircle around the structure created. Supervisors then provide a review of the step by step process from batter board to ring beam height.

Both to heighten the mood and to ensure understanding, supervisors may shoot out questions to participants during this process, the rest of the group being able to answer if correct or not.

Upon completion, participants are led inside for the evaluation quiz.

House supervision / Checklist:

Whenever possible, permission is asked to visit a house in the local area before the training.

A brief introduction is given. All participants will then walk to this area and be led through the standards checklist while crosschecking it with the house in question.

When not possible, this activity can be conducted using the structure created during the training.

Upon completion, participants are led inside for the communication skills training.

House supervision.



Communication skills:

A communication skills seminar is delivered before the group activity.

For the practical activity, Participants are divided into 4 groups that will work together in producing sticky notes to be placed in each required square (please see presentation). Once on the whiteboard, a supervisor will read out all notes to stimulate further ideas. Each supervisor will take it in turns to become one of the previously described homeowners (exaggeration, drama, laughs and silly props will help) and each group will, either collectively or by designating a leader, interact with them.

After each of the 4 sessions, the whole class will discuss the conversation and supervisors will provide feedback.

Communication skills activity.



Post Evaluation construction quiz:

Once a post evaluation quiz has been distributed to each participant, the MONEV officer in charge will provide a brief reminderon how to effectively complete the quiz.

As accurate test results are essential to gage the effectiveness of each training, there are two practised approaches which may help avoid cheating or lack of interest.

- Competition: A prize of moderate value (football, basketball etc.) is offered for those who achieve the
 highest score. This prize is shown neatly wrapped at the beginning of the test. The reward is provided once
 tests have been corrected (whenever possible the same day). This approach may be effective for a
 younger audience.
- 2. Collaboration: Pressure is removed as much as possible by asking participants to honestly fill in only what they know, stating that, as they have answered the same quiz before the training, it is an exiting way to be able to see their knowledge improved. This approach may be effective for an older audience.

A maximum of 30 minutes is recommended for the test.

Upon completion the MONEV officer will introduce the closure.

Discussion and close.

The correct answers to the completed evaluation quiz are given in a discussion format, where trainers may answer final questions or provide additional clarifications. This is also a good opportunity to ask participants for general training feedback.

A brief closure speech is delivered first by Build Change then by the contracting agency or participating authority.

Indications:

Appreciation for Agency and/or Local Authority.

Appreciation for Participants.

A brief revision of training activities.

A reminder to use the Build Change booklet for future reference.

A reminder to feel free to contact Build Change for any additional help (Technical assistance).

If there is time to prepare, a photo slideshow of the trainings best moments can be screened at this time.

Introduction of the partner party for final closure.



Though Similar, monitoring and evaluation procedures for each training provided by Build Change are adapted to participants background and availability:

Foundation MONEV description:

Before training:

Purchase requests are made for evaluation quiz printing and rewards a week in advance. All documents are made ready the day before the training.

During training:

Event is documented at all stages by photo in collaboration with technical supervisors. Quality over quantity is necessary, all photos should show the subject, the activity conducted and the location. Whenever possible the Build Change logo will be visible in the shot.

Notes are taken about unusual events or interesting questions.

The MONEV officer in charge is responsible for introducing the evaluation quiz (see training procedure) and for verifying post quiz results. Rewards are distributed alongside supervisors.

3 days after training:

Transfer quiz results to database, calculate improvements and report any significant changes or issues to management. Special attention will be payed to areas where quiz shows an improvement in training needs to be made.

An account of the training will be written in the form of magazine article or standard report.

1 month after the training:

With previous confirmation, a visit is payed to participants at their homes and an interview conducted. If any participant is currently in the process of building, photos will be taken of the structure as well as any earthquake safe elements they have learnt about in the training.

Framework/Touchstone MONEV description:

Before training:

Purchase requests are made for evaluation quiz printing and rewards a week in advance. All documents are made ready the day before the training.

During training:

Event is documented at all stages by photo in collaboration with technical supervisors. Quality over quantity is necessary, all photos should show the subject, the activity conducted and the location. Whenever possible the Build Change logo will be visible in the shot.

Notes are taken about unusual events or interesting questions.

The MONEV officer in charge is responsible for introducing the evaluation quiz (see training procedure) and for verifying post quiz results. Rewards are distributed alongside supervisors.

3 days after training:

Transfer quiz results to database, calculate improvements and report any significant changes or issues to management. Special attention will be payed to areas where quiz shows an improvement in training needs to be made.

An account of the training will be written in the form of magazine article or standard report.

1 month after the training:

Whenever possible participants will be brought together once again to complete the evaluation quiz that will then provide a very good comparison as well finding the areas that participants find hardest to remember.

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