







**Canadian Home Builders' Association
Net Zero Home Labelling Program – Version 1.4
Administrative Requirements**

**Effective: January 1, 2023
Last Updated: December 20, 2022**

MORE INFORMATION

	<h2>Net Zero Council</h2> <p>www.chba.ca/nzc</p> <ul style="list-style-type: none"> Portals (Council, MC, TC, SOs, EAs, Working Groups) Key Priorities
	<h2>Net Zero Home – for Consumers</h2> <p>www.NetZeroHome.com</p> <ul style="list-style-type: none"> Key Messaging including the “elevator pitch” and value propositions Qualified Net Zero Builders, Renovators and Homes Link to blog posts Net Zero Home Award Winners and Finalists
	<h2>Net Zero Home Labelling Program – for Industry</h2> <p>www.chba.ca/nze</p> <ul style="list-style-type: none"> Administrative and Technical Requirements, Training, Webinars Industry Directory (Qualified SOs / EAs / Trainers) Participant Registration Net Zero Renovations information NetZeroRenos.com
	<h2>Program Change Requests – for Industry</h2> <p>Change Requests</p> <ul style="list-style-type: none"> Change Request Process Change Request Schedule List of submitted Change Requests – approved and declined

CONTACT

Coordinator, Net Zero Home Labelling Program
 613.230.3060 x233
nzhlp@chba.ca

PREFACE

The Canadian Home Builders' Association (CHBA) is the voice of Canada's residential construction industry. The CHBA's membership includes new home builders, renovators, developers, trades, manufacturers, suppliers, lenders and other professionals. Members commit to act with integrity and professionalism in all aspects of their company's operations. Through the voluntary efforts of its members, the CHBA serves both consumers and producers of housing by promoting quality, affordability and choice in housing for all Canadians.

This voluntary Program further enhances choice in housing for Canadians by providing a rigorous industry-led Technical Requirement for Net Zero Homes, built on Government of Canada programs and tools, and evaluated by trained and licenced Energy Advisors independent of the CHBA. The Program continues CHBA's longstanding tradition of leading the industry in energy efficient and sustainable housing through collaboration with research partners in industry, academia and government.

The CHBA is responsible for developing and updating the Administrative and Technical Requirements as well as supporting tools such as the marketing/communications and educational courses. The Program Participants are responsible for complying with their Agreements, meeting all Program Requirements, and providing attestation documentation to CHBA to that effect.

To keep the program focused, the Technical Requirements concentrate on elements affecting net energy consumption. ***The goal is to maximize participation and enable builders to deliver a market-ready product with off-the-shelf components.***

This Program is not a substitute for local building codes, by-laws and standards that may be in force. Rather it provides a set of **voluntary requirements** that are intended to complement, not replace, applicable regulations. Additionally, the Technical Requirements are a compilation of existing initiatives delivered by NRCan as well as applicable recognized North American standards delivered by organizations such as CAN/CSA/ULC, to bring together the most advanced industry best practices in energy efficiency.

Voluntary programs promoting energy efficiency have been in use in Canada for four decades now, with excellent success. CHBA members have been participating in these voluntary programs since the beginning and have been leaders in reducing the energy consumption of the residential sector. This Program continues in that tradition, and attestation to conformance with the Program Requirements enables builders and renovators to identify themselves as CHBA Qualified Net Zero Builders/Renovators, and their products as CHBA Qualified Net Zero/Ready Homes.

In March 2021, the CHBA wrapped up a two-year initiative to develop the Net Zero Renovation Labelling technical and administrative requirements, as well as training and tools for renovators, and conducted a Pilot to validate them. Utilizing the results of the Pilot, a version 1 has been developed and launched in the Fall of 2021. We would like to thank Natural Resources Canada, Office of Energy Efficiency for their contributions towards this initiative. Learn more at www.NetZeroRenos.com.

TABLE OF CONTENTS

1.0	ADMINISTRATIVE REQUIREMENTS – FOR THE PARTICIPANTS	1
1.1	How to Become a CHBA Qualified Net Zero Program Participant	1
1.2	Participant Agreements	2
1.3	Quality Assurance Procedures	9
1.4	Legal Structure and Indemnity	11
1.5	Program Benefits	13
1.6	Annual Fees	14
2.0	ADMINISTRATIVE REQUIREMENTS – FOR THE HOMES	15
2.1	How to Qualify a New Home	15
2.2	How to Qualify a Renovation	16
2.3	Home Label Numbering Convention	17
2.4	Net Zero/Ready Home Label Samples	18
2.5	Photovoltaic System Design and Reporting	19
2.6	Project Registration Workbook	20
2.7	Space Cooling Information Sheet	28
2.8	Fireplace Information Sheet	29

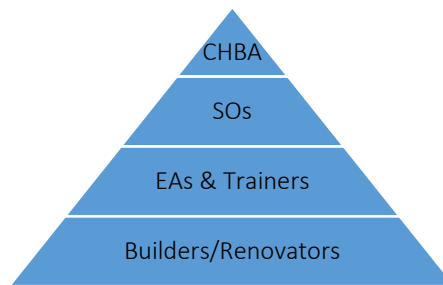
1.0 ADMINISTRATIVE REQUIREMENTS – FOR THE PARTICIPANTS

This section of the document provides information on the Administrative Requirements for the Program Participants (Service Organizations, Energy Advisors, Trainers, Builders & Renovators) and includes:

1. How to become a CHBA Qualified Net Zero Program Participant
2. Participant Agreements (*with attestations, signed annually at time of registration*)
3. Qualified Participant Services/Responsibilities Summary Chart
4. Quality Assurance Procedures
5. Legal Structure and Indemnity
6. Program Benefits
7. Annual Fees

1.1 How to Become a CHBA Qualified Net Zero Program Participant

In order to participate in the Program, Service Organizations, Energy Advisors, Trainers, Builders & Renovators must meet the requirements as detailed below and sign an agreement at the time of annual registration which includes an attestation that the Program Requirements have been met.



REQUIREMENTS	SO	EA	Trainer	Builder	Renovator
Membership - With the Canadian Home Builders' Association	✓	✓	✓	✓	✓
RenoMark® Renovator – Code of Conduct	X	X	X	X	✓
NRCan License - To deliver NRCan Programs*	✓	✓	✓	✓	X
Training & Exam - Successfully complete CHBA Net Zero Training*	X	✓	✓	✓	✓
Participant Specific - Additional Requirements*	✓	✓	✓	✓	✓
Registration/Agreement and Fee - Submitted Annually	✓	✓	✓	✓	✓

* See the participant specific requirements in section 1.2 below.

1.2 Participant Agreements

Participants sign this agreement once all requirements have been met and are registering to be recognized as a qualified participant under the program. (A customized copy is provided to the participant upon registration.)

THIS AGREEMENT dated the 1st day of January _____

BETWEEN:

The Canadian Home Builders' Association
(Hereinafter called the "CHBA")

-AND-

INSERT COMPANY NAME
(Hereinafter called the "Qualified Participant")

WHEREAS the CHBA has developed the Net Zero Home Labelling Program ("the Program") to recognize builders, renovators and service professionals who commit to its Administrative Requirements and recognizes houses that these builders, renovators and service professionals attest to meeting the Technical Requirements.

THEREFORE, the CHBA and the Qualified Participant agree as follows:

1. SERVICES

The Qualified Participant will meet the requirements and provide the services as outlined in the respective sections below, as identified:

- Service Organization (SO)
- Energy Advisor (EA)
- Trainer
- Builder
- Renovator

2. LEGAL STRUCTURE AND INDEMNITY

See the Program Administrative Requirements for Legal Structure and Indemnity.

3. STATUS

Nothing in this Agreement constitutes the Qualified Participant as the agent of the CHBA, which status is specifically excluded.

4. STANDARD OF CARE

The Qualified Participant shall perform the services under this Agreement with the degree of care, skill and diligence generally accepted as typical in construction training and construction evaluation, at the time such services are rendered.

5. TIMEFRAME

The work will commence on the date first written above and, subject to paragraph 7 below, the Agreement will be in effect for a term of one year. It is renewed, in yearly increments thereafter, unless either party indicates otherwise at least 30 days prior to the anniversary date.

6. DELAYS

Neither Party shall be liable or penalized for delays or failure to perform, if same is caused directly or indirectly by circumstances beyond the Party's reasonable control, acts of God, acts and/or omissions of governmental authorities and regulatory agencies or other events which are beyond the reasonable control of the parties.

7. TERMINATION

The CHBA may, at any time, by notice in writing to the Qualified Participant, suspend or terminate the Services or any portion thereof at any stage. Upon receipt of such written notice by the CHBA, the Qualified Participant shall perform no further Services other than those reasonably necessary to close out its Services.

8. INSURANCE

The Qualified Participant agrees to the insurance requirements as specified in their respective section below.

9. INDEMNIFICATION

Subject to any limitations stated in this Agreement, each Party shall indemnify and hold harmless the other Party, their respective officers, directors, employees, and subcontractors, from and against all claims arising out of damages or liabilities caused by a negligent act, strict liability, breach of contract, error, or omission of the said Party or any of its agents, subcontractors, or employees in the performance of its obligations under this Agreement.

10. AUDIT

The Qualified Participant shall keep proper and detailed records as specified in the CHBA Net Zero Home Labelling Program Administrative Requirements, and all other documents relating to the of carrying out the project and shall at all reasonable times permit inspection and audit of such records by the CHBA.

11. NOTICES

All notices under this Agreement shall be in writing. It shall be sufficient if the Notice is delivered by hand or by electronic means during normal business hours, whereupon it shall be deemed to have been given and received on the day of delivery. Notice may also be sent by registered mail, postage prepaid, addressed to:

QUALIFIED PARTICIPANT COMPANY NAME

Attn: Name, Title
Address
City, PV, PC
P: xxx.xxx.xxxx
E: xxxxx@xxxxx.com

CHBA

Attn: Kevin Lee, CEO
141 Laurier Avenue West, Suite 500
Ottawa, ON, K1P 5J4
P: 613.230.3060
E: kevin.lee@chba.ca

or to such other address as either Party shall have designated by written notice to the other Party, whereupon it shall be deemed to have been given and received on the third business day thereafter.

12. APPLICABLE LAW

This Agreement shall be governed by the laws in the Province of Ontario.

13. DISPUTE RESOLUTION

Any disagreement arising between the Parties with reference to this Agreement upon which the Parties cannot agree shall be referred to a single arbitrator in accordance with the laws of arbitration in the Province of Ontario. The costs of the arbitrator shall be shared equally by the Parties on an interim basis as may be necessary provided however that the arbitrator shall have the discretion to award costs of the proceeding, including costs of the arbitrator. All decisions of the arbitrator shall be final and binding upon the Parties thereto and not subject to appeal.

IN WITNESS WHEREOF the Parties have executed this Agreement on the date first written above. The signatories have the authority to bind their respective corporations for purposes of this Agreement.

Qualified Participant Company Name

Canadian Home Builders' Association

Insert Name, Title

Kevin Lee, CEO

SERVICE ORGANIZATIONS (SO)

As part of the Participant Agreement, the CHBA Qualified Net Zero Service Organization (SO) agrees to:

- a) be a member in good standing of the CHBA,
- b) be [licensed through NRCAN](#) to deliver the EnerGuide Rating System, and ENERGY STAR® for New Homes or R-2000,
- c) train and deploy a minimum of one CHBA Qualified Net Zero Energy Advisors ("Energy Advisors") per the current version of the Program Administrative Requirements, and ensure they meet all the Program Requirements,
- d) train and employ/contract a CHBA Qualified Net Zero Trainer ("Trainer") for the specific course being offered (ie Sales training vs EA training), per the current version of the Program Administrative Requirements, and ensure they meet all the Program Requirements, if the SO chooses to deliver CHBA Net Zero Training,
- e) promptly notify the CHBA of the participants who have met the Program Qualifications, per the current version of the Administrative Requirements,
- f) ensure their CHBA Qualified Net Zero Energy Advisors and Trainers are providing consulting services, including training, to builders and renovators to meet the qualifications as specified in the current versions of the Administrative and Technical Requirements,
- g) keep ongoing record of label pre-enrollments in the CHBA Pre-Enrollment Form.
- h) provide a Net Zero/Ready Home label to a home only when fully satisfied that the home has met the Technical Requirements and the participants have met the Administrative Requirements, and take responsibility for that attestation,
- i) Report all required information on homes that have met the Technical Requirements to the CHBA within a month of the home being labelled, and keep a record of the following files for each home for at least 4 years:
 1. The HOT2000 files including the as-built Blower Door Test results showing the home has met 0 GJ. (For Net Zero Ready Homes, two HOT2000 files are needed: one file modelled with the PV showing the home meets 0 GJ and one without the PV which is submitted to NRCAN.)
 2. The Project Registration Workbook, with all tabs completed as required.
- j) report all required information on the results of any CHBA Net Zero training sessions delivered (such as attendance, exam results, and participant feedback) within a month of the training completion,
- k) use the CHBA Net Zero Home Labelling Program branding, language/messaging and marketing/communications as per the usage specifications,
- l) advise the CHBA of their feedback on the program, including participation in such meetings as the CHBA may reasonably require, at the SO's expense,
- m) participate in regularly scheduled meetings with the CHBA to receive program updates and to provide feedback, and include their Energy Advisors and Trainers as required, and ensure that they receive program updates,
- n) register and pay the SO program fees annually, per Section 1.6 of the Administrative Requirements,
- o) adhere to the following insurance requirements:
 - Carry and maintain worker's compensation insurance to statutory requirement amounts.
 - Commercial General Liability Insurance in the amount of \$1,000,000 per occurrence and \$2,000,000 in the aggregate and shall name the CHBA as Additional Insured.
 - Professional Liability Insurance (Errors & Omissions) in the amount of \$1,000,000 per claim and \$2,000,000 in the aggregate and the policy will be renewed for two (2) years after Project completion.
 - The SO shall provide the CHBA with proof of such insurance.
 - If the CHBA requests that the SO increase the amount of insurance coverage or obtain other special insurance for the Project, the SO shall endeavor forthwith to obtain such increased or special insurance.
 - It is understood and agreed that the coverage provided by these policies will not be cancelled by the SO until thirty (30) days after written notice of cancellation has been delivered to the CHBA.
- p) adhere to the Program Code of Ethics:
 - Exercise his/her duties with honesty, integrity, fairness and impartiality;
 - Avoid any apparent conflict of interest and avoid association with any enterprise of questionable character;
 - Uphold and maintain the professional integrity, reputation and practice of the Net Zero Home Labelling Program and related efforts by the CHBA Net Zero Energy Housing Council; and
 - Comply with the Program Administrative and Technical Requirements.

Once Service Organizations meet all the Program Requirements, they must register with the CHBA and sign the participant agreement to be recognized as being qualified under the program. All CHBA Qualified participants must continue to meet the Program Requirements on an on-going basis and must register with the CHBA annually.

REGISTER ONLINE AT www.chba.ca/NZHLRegistration

ENERGY ADVISORS (EA)

As part of the Participant Agreement, the CHBA Qualified Net Zero Energy Advisor (EA) agrees to:

- a) be a member in good standing of the CHBA,
- b) be [registered through NRCan](#) to deliver the EnerGuide Rating System (ERS), and ENERGY STAR® for New Homes or R-2000, successfully complete both the CHBA Net Zero Builder Training and Energy Advisor Training with a minimum written exam score of 75%. Complete and pass the Modelling Exercise test file and Practical Exam test file within the CHBA Net Zero Energy Advisor Training course (Students who completed the Net Zero EA Training Course prior to December 8, 2020 must have successfully completed at least two (2) Net Zero Home files, mentored and reviewed by a CHBA Qualified Net Zero EA), and if labelling Net Zero/Ready Renovations, successfully complete the CHBA Net Zero Energy Advisor Training for Renovations with a minimum written exam score of 75%,
- c) notify the builder/renovator when a home exceeds the space cooling threshold to advise them that they must therefore discuss with the home buyer/owner the option and benefits of including a space cooling system to ensure occupant comfort,
- d) in a Net Zero/Ready Home Renovation, notify the renovator of the risk associated with existing fireplaces and inform them of the program requirements for appropriately renovating or decommissioning existing fireplaces,
- e) complete the Verification Checklist with the Builder/Renovator for each Net Zero/Ready Home file,
- f) submit a complete Net Zero/Ready Home file to the SO only when fully satisfied that the home has met the current Program Technical Requirements, attests to same, and takes responsibility for that attestation,
- g) use the CHBA Net Zero Home Labelling Program branding, language/messaging and marketing/communications as per the usage specifications,
- h) advise the CHBA of their feedback on the program, including participation in such meetings as the CHBA may reasonably require, at the EA's expense,
- i) register and pay the EA program fees annually, per Section 1.6 of the Administrative Requirements,
- j) adhere to the following insurance requirements:
 - Carry and maintain worker's compensation insurance to statutory requirement amounts.
 - Commercial General Liability Insurance in the amount of \$1,000,000 per occurrence and \$2,000,000 in the aggregate and shall name the CHBA as Additional Insured.
 - Professional Liability Insurance (Errors & Omissions) in the amount of \$1,000,000 per claim and \$2,000,000 in the aggregate and the policy will be renewed for two (2) years after Project completion.
 - The EA shall provide the CHBA with proof of such insurance.
 - If the CHBA requests that the EA increase the amount of insurance coverage or obtain other special insurance for the Project, the EA shall endeavor forthwith to obtain such increased or special insurance.
 - It is understood and agreed that the coverage provided by these policies will not be cancelled by the EA until thirty (30) days after written notice of cancellation has been delivered to the CHBA.
- k) adhere to the Program Code of Ethics:
 - Exercise his/her duties with honesty, integrity, fairness and impartiality;
 - Avoid any apparent conflict of interest and avoid association with any enterprise of questionable character;
 - Uphold and maintain the professional integrity, reputation and practice of the Net Zero Home Labelling Program and related efforts by the CHBA Net Zero Energy Housing Council; and
 - Comply with the Program Administrative and Technical Requirements.

Once Energy Advisors meet all the Program Requirements, they must register with the CHBA and sign the participant agreement to be recognized as being qualified under the program. All CHBA Qualified participants must continue to meet the Program Requirements on an on-going basis and must register with the CHBA annually.

REGISTER ONLINE AT www.chba.ca/NZHLRegistration

TRAINERS

As part of the Participant Agreement, the CHBA Qualified Net Zero Trainer agrees to:

- a) meet all qualifications, per the current version of the Program Administrative Requirements and, to maintain the designation, continue to meet them on an on-going basis,
- b) be a CHBA Qualified Net Zero Energy Advisor,
- c) be licensed through NRCan to deliver training for ENERGY STAR® and/or R-2000, and/or be an approved Trainer by the CHBA Qualified Net Zero SO,
- d) have successfully completed an adult learning instructional skills/train-the-trainer course, and/or have experience delivering technical training,
- e) receive mentoring at their first training session from a CHBA Qualified Net Zero Trainer,
- f) provide Training services to builders/renovators, delivering Net Zero course content as per the instructor manuals, documenting attendance, administering and marking the exams, collecting participant feedback and reporting all results to the CHBA Qualified Net Zero SO within a week of course completion,
- g) use the CHBA Net Zero Home Labelling Program branding, language/messaging and marketing/communications as per the usage specifications,
- h) advise the CHBA of their feedback on the program, including participation in such meetings as the CHBA may reasonably require, at the Trainers expense,
- i) register and pay the Trainer program fees annually, per Section 1.6 of the Administrative Requirements,
- j) adhere to the Program Code of Ethics:
 - Exercise his/her duties with honesty, integrity, fairness and impartiality;
 - Avoid any apparent conflict of interest and avoid association with any enterprise of questionable character;
 - Uphold and maintain the professional integrity, reputation and practice of the Net Zero Home Labelling Program and related efforts by the CHBA Net Zero Energy Housing Council; and
 - Comply with the Program Administrative and Technical Requirements.

Once Trainers meet all the Program Requirements, they must register with the CHBA and sign the participant agreement to be recognized as being qualified under the program. All CHBA Qualified participants must continue to meet the Program Requirements on an on-going basis and must register with the CHBA annually.

REGISTER ONLINE AT www.chba.ca/NZHLRegistration

BUILDERS

As part of the Participant Agreement, the CHBA Qualified Net Zero Builder agrees to:

- a) be a Builder Member in good standing of the CHBA,
- b) register all their homes with a warranty provider as required by CHBA Builder members,
- c) successfully complete an “SO approved” Building Science Training course (the pre-requisite to the CHBA Net Zero Builder Training), and the CHBA Net Zero Builder Training (with a minimum exam score of 75%),
- d) in the case of a new home (not a renovation), become an [EnerGuide \(ERS\) registered builder with NRCan](#) before starting the home,
- e) meet all qualifications, per the current version of the Program Administrative Requirements and, to maintain the designation, will continue to meet them on an on-going basis,
- f) build the homes, ensure that the homes meet the current version of the CHBA Net Zero Home Labelling Program Technical Requirements, attest to same, and take responsibility for that attestation,
- g) notify the home buyer/owner when a home exceeds the space cooling threshold and will discuss the option and benefits of including a space cooling system to ensure occupant comfort (the program Space Cooling Information Sheet is available to support those discussions),
- h) work with a CHBA Qualified Net Zero EA and SO to obtain ERS and Net Zero/Ready labels and affix them to the home,
- i) upon completion of each Net Zero/Ready Home, complete the Verification Checklist (within the Project Registration Workbook) with the Energy Advisor,
- j) use the CHBA Net Zero Home Labelling Program branding, language/messaging and marketing/communications as per the usage specifications,
- k) advise the CHBA of their feedback on the program, including participation in such meetings as the CHBA may reasonably require, at the Builder’s expense,
- l) register and pay the Builder program fees annually, per Section 1.6 of the Administrative Requirements,
- m) adhere to the Program Code of Ethics:
 - Exercise its duties with honesty, integrity, fairness and impartiality;
 - Avoid any apparent conflict of interest and avoid association with any enterprise of questionable character;
 - Uphold and maintain the professional integrity, reputation and practice of the Net Zero Home Labelling Program and related efforts by the CHBA Net Zero Energy Housing Council; and
 - Comply with the Program Administrative and Technical Requirements.

Once Builders meet all the Program Requirements, they must register with the CHBA and sign the participant agreement to be recognized as being qualified under the program. All CHBA Qualified participants must continue to meet the Program Requirements on an on-going basis and must register with the CHBA annually.

REGISTER ONLINE AT www.chba.ca/NZHLRegistration

RENOVATORS

As part of the Participant Agreement, the CHBA Qualified Net Zero Renovator agrees to:

- a) be a Builder or Renovator Member in good standing of the CHBA,
- b) successfully complete an “SO approved” Building Science Training course (the pre-requisite to the CHBA Net Zero Builder Training), the CHBA Net Zero Builder Training (with a minimum exam score of 75%), and the CHBA Net Zero Renovator Training (with a minimum exam score of 75%),
- c) be a RenoMark® Renovator,
- d) meet all qualifications, per the current version of the Program Administrative Requirements and, to maintain the designation, will continue to meet them on an on-going basis,
- e) renovate the homes, ensure that the homes meet the current version of the CHBA Net Zero Home Labelling Program Technical Requirements, attest to same, and take responsibility for that attestation,
- f) notify the home buyer/owner when a home exceeds the space cooling threshold and will discuss the option and benefits of including a space cooling system to ensure occupant comfort (the program Space Cooling Information Sheet is available to support those discussions),
- g) notify the home buyer/owner of the risk associated with existing fireplaces and inform them of the program requirements for appropriately renovating or decommissioning existing fireplaces. Should the homeowner decide to keep an existing fireplace the renovator will ensure that the program procedures are followed as per the Net Zero Renovation Technical Requirements and that the homeowner is provided the appropriate program reference material,
- h) work with a CHBA Qualified Net Zero EA and SO to obtain EnerGuide (ERS) and Net Zero/Ready labels and affix them to the home,
- i) upon completion of each Net Zero/Ready Home Renovation complete the Verification Checklist (within the Project Registration Workbook) with the Energy Advisor,
- j) use the CHBA Net Zero Home Labelling Program branding, language/messaging and marketing/communications as per the usage specifications,
- k) advise the CHBA of their feedback on the program, including participation in such meetings as the CHBA may reasonably require, at the Renovator’s expense,
- l) register and pay the Renovator program fees annually, per Section 1.6 of the Administrative Requirements,
- m) adhere to the Program Code of Ethics:
 - Exercise its duties with honesty, integrity, fairness and impartiality;
 - Avoid any apparent conflict of interest and avoid association with any enterprise of questionable character;
 - Uphold and maintain the professional integrity, reputation and practice of the Net Zero Home Labelling Program and related efforts by the CHBA Net Zero Energy Housing Council; and
 - Comply with the Program Administrative and Technical Requirements.

Once Renovators meet all the Program Requirements, they must register with the CHBA and sign the participant agreement to be recognized as being qualified under the program. All CHBA Qualified participants must continue to meet the Program Requirements on an on-going basis and must register with the CHBA annually.

REGISTER ONLINE AT www.chba.ca/NZHLRegistration

1.3 Quality Assurance Procedures

Quality Assurance is a necessary practise in order to maintain the creditability and continuous improvement of the CHBA Net Zero Home Labelling Program. The CHBA will preform regular quality assurance reviews on the Qualified Net Zero Participants as well as the Qualified Net Zero Homes as described below in order to verify that program participant submissions are meeting the Administrative and Technical Requirements. The CHBA will also conduct quality assurance audits as described below. Additionally, it is expected that all program participants adhere to the quality assurance requirements per their EnerGuide Rating System registration and/or licences with NRCan.

Qualified Participant Audit:

The CHBA will perform an annual audit on all Qualified Participants. The audit will be used to verify that Qualified Participants meet the Program Requirements as described in the Administrative Requirements including the Participant Agreements. If the Qualified Participant does not meet the requirements of the program, they may be subject to corrective action as outlined in this section.

Qualified Home File Audit:

The CHBA will perform audits on a minimum of 5% of each Energy Advisor's Net Zero/Ready home file submissions annually. CHBA also reserves the right to conduct spot audits on files when potential discrepancies are identified. The audits will be performed to verify that the submission demonstrates that the Qualified Net Zero/Ready home meets the Administrative and Technical Requirements. If the Qualified Net Zero/Ready home file does not meet the program requirements, all Qualified Participants involved in the home files submission may be subject to corrective action based on the results of the audit.

This audit will entail the manual verification of the accuracy of information provided in the required documentation including the HOT2000 file and the Project Registration Workbook. Should any additional documentation be required to conduct the audit the participants will be notified. The CHBA will report the results of the audit to participants involved in the file. Should deficiencies in the file be identified further action may be required.

The CHBA reserves the right to audit participants at any time to ensure documentation is in order. Should there be a misrepresentation of facts relating to the program requirements, the CHBA reserves the right to take action that may include, but is not limited to, requiring action on the part of the program participant(s) to take corrective measures and/or suspension and/or termination of the applicable Qualification as designated by the CHBA under this program.

Suspension & Termination Definitions

Suspension: A Program Participant that has been issued a Notice of Suspension will be temporarily unable to have any Net Zero / Ready Homes processed or approved by the CHBA. A Notice of Suspension is issued following a 30-calendar day grace period in which a Program Participant has unsuccessfully resolved a minor infraction. The SO is responsible for determining suspension durations and procedures for Trainers, EAs, Builders and Renovators that have committed an infraction. The CHBA is responsible for determining suspension durations and procedures for SO's that have committed an infraction.

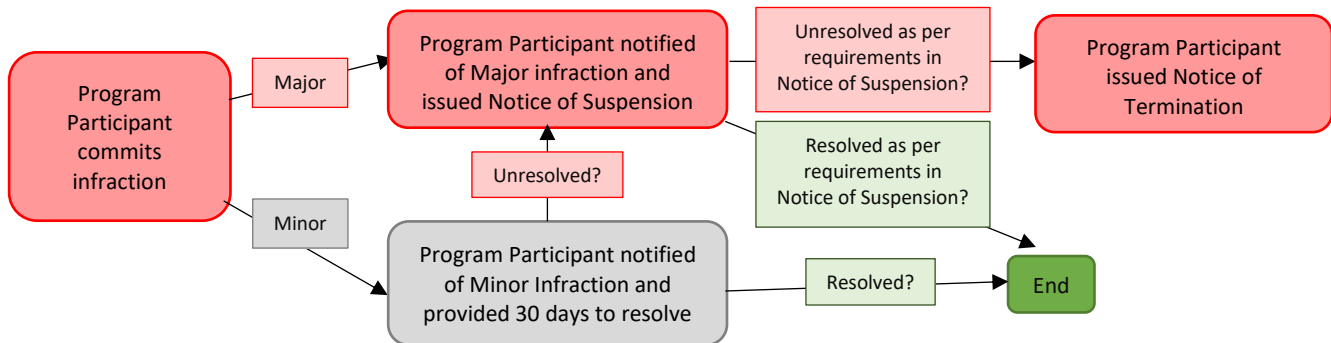
Termination: A Program Participant that has been issued a Notice of Disqualification will be immediately removed of their designation as a CHBA Qualified participant (SO, EA, Trainer, Builder, Renovator). All EAs, Builders and Renovators will be notified from the CHBA that they are no longer able to submit files under the disqualified SO's name. All SO's will be notified from the CHBA that they are no longer able to accept files from a disqualified EA, Builder or Renovator, or utilize a disqualified Trainer.

INFRACTIONS

There are two types of infractions: major infractions and minor infractions. Most major infractions result in immediate suspension. Minor infractions can be cleared following successful remedial activities prescribed by an energy advisor's service organization. Infractions viewed as minor by the service organization may be viewed as a major infraction at the discretion of the CHBA; repeated minor infractions will also be deemed as major infractions. The table below provides some examples of infractions (but not limited to these examples) that may result in suspension or termination.

Major Infractions	Minor Infractions
Breaches of federal or provincial law, or unethical behaviour.	Not providing a label or reports to Homeowners.
Confirmed instance of energy advisor accepting money from contractors in exchange for business referrals.	Failure to implement measures or policies introduced in program communications (i.e. Program Bulletins).
Repeated minor infractions.	Not collecting complete and proper data of the home including sketches.
Submitting a home energy evaluation file for an evaluation conducted by someone who is not registered for the given housing program.	Not following procedural (administrative, technical, quality assurance) processes.
Performing an evaluation for an initiative that the energy advisor is not trained or registered to conduct.	Not following marketing guidelines.

PROCEDURE



1.4 Legal Structure and Indemnity

Program participants are encouraged to use this language in their home sale/purchase agreements.

1. The **CHBA Net Zero Home Labelling Program** (the Program) recognizes builders, renovators and service professionals who commit to meet its Program Requirements and recognizes houses that these builders and service professionals attest to meeting the Program's Technical Requirements.
2. The **Canadian Home Builders' Association** (the CHBA) is a national not-for-profit organization with voluntary membership comprising new home builders, renovators, developers, trades, manufacturers, suppliers, lenders and other professionals. CHBA is not a construction company, warranty organization, certification or standards body in any way. The CHBA provides this Program to help interested homebuyers identify net zero builders, renovators and homes, and to support its members who are looking to provide these homes to homebuyers and homeowners.
3. The **CHBA Net Zero Home Labelling Program Technical Requirements** (the Technical Requirements) use the standards developed by the Department of Natural Resources Canada (NRCan), of the Government of Canada, that can be used to build to net zero or net zero ready performance under the following programs:

Issuing Agency	Document	Reference
NRCan	EnerGuide Rating System (ERS) v15	ISBN 978-1-100-25693-1
NRCan	ENERGY STAR® for New Homes (ESNH) Standard v12 or v17	M144-237/2012-6E-PDF or ISBN 978-1-100-25853-9
NRCan	2012 R-2000 Standard	M144-223/2012E-PDF
CHBA	Net Zero Home Labelling Program for New Homes Technical Requirements	
CHBA	Net Zero Home Labelling Program for Renovations Technical Requirements	
CHBA	Net Zero Home Labelling Program Technical Procedures Guidebook	

4. Net Zero/Ready Homes shall **comply with the applicable building codes and regulations**, in addition to the requirements of this Program. This Program is not a substitute for local, provincial, or territorial building codes; it is an additional set of requirements that are intentionally more stringent in the areas of energy efficiency and net energy consumption.
5. A **CHBA Qualified Net Zero Home and a CHBA Qualified Net Zero Ready Home** that is labelled under the Program is a home that is recognized by CHBA, on the basis of the attestations (by the builder/renovator, its Qualified Net Zero Service Organization and a Qualified Net Zero Energy Advisor) to have met the Technical Requirements, including the energy performance rating using NRCan's EnerGuide Rating System (ERS).
6. A **CHBA Qualified Net Zero Service Organization** (the Service Organization) must meet the ongoing requirements of the Program, including being licensed through NRCan to deliver EnerGuide, and ENERGY STAR® or R-2000. See above for more information on the Service Organization requirements for qualification under the Program.
7. A **CHBA Qualified Net Zero Energy Advisor** (the Energy Advisor) must meet the ongoing requirements of the Program, including being registered through NRCan to deliver EnerGuide and ENERGY STAR® or R-2000. See above for more information on the Energy Advisor requirements for qualification under the Program.
8. A **CHBA Qualified Net Zero Trainer** (the Trainer) must meet the ongoing requirements of the Program, including being licensed through NRCan to deliver training for ENERGY STAR® and/or R-2000. See above for more information on the Trainer requirements for qualification under the Program.
9. A **CHBA Qualified Net Zero Builder** (the Builder) must meet the ongoing requirements of the Program, including being an EnerGuide registered Builder through NRCan. See above for more information on the Builder requirements for qualification under Program.

10. A **CHBA Qualified Net Zero Renovator** (the Renovator) must meet the ongoing requirements of the Program, including being a RenoMark® Renovator. See above for more information on the Builder requirements for qualification under Program.
11. **HOT2000** is an energy simulation and design tool for low-rise residential buildings developed and managed by the Office of Energy Efficiency at Natural Resources Canada. HOT2000 supports Natural Resources Canada's EnerGuide Rating System (ERS), ENERGY STAR for New Homes (ESNH) and R-2000 energy efficiency residential programs. The v15 ERS scale gives a consumption-based rating measured in gigajoules (GJ) per year using version 11 of HOT2000, as compared to the previous 0-100 scale.
12. The **energy performance rating** required for recognition under the Program means that the house has been rated to achieve a net zero energy consumption rating equal to or less than zero gigajoules (0 GJ) per year using version 11 of HOT2000, and other program requirements.
13. **Service Professionals' Attestation:** The Energy Advisor and Service Organization review the home design and construction and attest that it meets the Program's Technical Requirements. Any digressions from the design, testing, construction and evaluation procedures for a given house are the exclusive responsibility of the Energy Advisor and the Service Organization. CHBA in no way warrants the work of the Service Professionals on any given house.
14. It is the **Builder's responsibility** to ensure the house meets the Technical Requirements (including the energy performance rating using NRCan's ERS) on the basis of the work by the Service Professionals, and that the house meets any and all applicable local building codes and standards. The builder attests that the home has been built to meet the Program's Technical Requirements, and any digressions therefrom are the exclusive responsibility of the builder. ***The contract for the home's construction is exclusively between the builder and the Purchaser of the home or, in the case of a renovation, the homeowner.***
15. **Warranty: CHBA members are required to register all their homes with a warranty provider**, including their Net Zero/Ready Homes.
16. CHBA is not a warranty organization and as such **CHBA in no way warrants** construction of the house or its energy performance. The Net Zero/Ready Home label is in no way a warranty. CHBA does not conduct its own construction, renovation or evaluation, and does not take responsibility for the performance or accuracy thereof, or for any responsibilities (contractual or otherwise) to the Purchaser of the home or in the case of a renovation, the homeowner.
17. **Actual Energy Consumption** will vary according to occupant behaviour, actual fluctuating yearly climatic conditions, and other factors. As such, the rating is specifically not a prediction of net zero energy consumption or zero energy cost in any given year. It is instead a rating of the net annual energy use of the home, in an average climatic year, based on assumed standard occupancy, occupant energy loads, and operating conditions according to NRCan's ERS. Occupant factors, such as the number of occupants, occupant behaviour, and occupant selected and controlled appliances and electronics, as well as climatic conditions (e.g. temperature, solar radiance) will vary and affect the actual annual energy consumption and production of the home.
18. **Ongoing maintenance** to ensure optimum performance is solely the responsibility of the homeowner(s).
19. **The rating is predicated** on the data and standards specifically at the time of the evaluation, and not at a later date.
20. Per all the above, achieving **net zero energy consumption in any given year is not, and cannot be guaranteed** by the builder, Natural Resources Canada, the Service Organization, Energy Advisor, or CHBA. Under the varying conditions that will be experienced, the house may use more or less energy than the rating.

1.5 Program Benefits

Participation in this program offers recognition as an industry leader for those delivering the next generation of high-performance housing to discerning Canadian home buyers. The CHBA offers the following benefits to qualified program participants:

NATIONAL LEADERSHIP:

- **BRAND** leadership as the residential construction industry's top tier voluntary performance target.
- **COMMUNICATION** of program results to key stakeholders such as utilities, government, and media, providing program and policy direction.
- **RESEARCH** focused on advancing the voluntary adoption of affordable Net Zero/Ready Homes, including Renos and MURBs.
- **CONSUMER LITERACY** development through delivery of content, to drive demand for Net Zero Homes.
- **COORDINATION** of efforts nationally through a network of qualified professionals and online data collection system.

SALES & MARKETING/COMMUNICATIONS TOOLS (Under on-going development):

- **LOGOS** for Qualified Participants within the Program.
- **ICONS** for email signatures of Qualified Participant within the Program.
- **LABELS** for Qualified Homes.
- **PLAQUES** available for purchase for Qualified Homes.
- **NET ZERO HOME AWARD** eligibility for Qualified Homes.
- **NET ZERO NEWS** monthly e-newsletter and other industry publications.
- **CONSUMER RECOGNITION** as an industry leader through the web-directory of Qualified Builders and Renovators.
- **INDUSTRY RECOGNITION** as an industry leader through the web-directory of Qualified SOs, EAs, and Trainers.
- **BROCHURE** for print or digital distribution.
- **SOCIAL MEDIA CAMPAIGN TOOLS** including consumer videos and shareable social media posts.
- **GOVERNMENT RELATIONS** strategy and tools (under development).
- **HOME OPENING PROMO PACKAGE** option for Qualified Net Zero/Ready Homes.

EDUCATION TOOLS (Under on-going development):

- **TRAINING** courses for builders, EAs, sales staff and coming soon for trades and building officials.
- **WEBINARS** on topics relevant to energy efficient construction.
- **LEADERSHIP SUMMIT** to stay abreast of industry innovations.
- **NETWORKING** and collaboration with an industry peer group focused on high-performance housing.
- **UPDATES** to the Program Requirements and educational offerings based on industry guidance.
- **REPORTS** on assemblies, mechanicals, and overall performance of Qualified Net Zero/Ready Homes.

More information on these program benefits can be found at www.chba.ca/nze.

1.6 Annual Fees

The fee structure is detailed below.

1. **Annual Participant Registration Fees** will be billed by CHBA-National to each Qualified Participant every January at the time of annual registration and attestation. This fee pays for on-going program administration and marketing.

	2022	2023	2024	2025
Qualified Net Zero Builder	\$250	\$255	\$260	\$265
Qualified Net Zero Renovator	\$250	\$255	\$260	\$265
Qualified Net Zero Energy Advisor	\$150	\$153	\$156	\$159
Qualified Net Zero Trainer	\$50	\$51	\$52	\$53
Qualified Net Zero Service Organization	\$150	\$153	\$156	\$159

2. **Annual Home Registration Fees** for each home labelled will be billed to Builders/Renovators by the Qualified Net Zero Service Organization and will be included with the service fees from your SO. This fee pays for on-going Program maintenance including updates to the Technical and Administrative Requirements.

	2022	2023	2024	2025
Home Registration Fee (per label)	\$100	\$102	\$104	\$106

NOTE:

- Newly qualifying participants registering after June 1 will pay 50% of the Annual Participant Registration Fee for the first year, and those registering after December 1 will be deferred to the next calendar year.
- Participants that no longer want to participate in the program must cancel their agreement with the Program by emailing brett.cass@chba.ca in a timely manner to avoid unnecessary fees. Upon cancellation, participants will be removed from the CHBA Net Zero directory listing and they may no longer promote themselves as a Qualified Net Zero Participant. Homes labelled prior to the cancellation will remain qualified and listed. Re-qualification in the future will require that the participant meet all program qualification requirements.
- Training fees of \$45 per participant are billed by your Qualified Net Zero Service Organization at the time of Net Zero Training registration and is included in the price of each course. This fee pays for on-going Net Zero Training course updates and the development of new training courses.
- The fees will increase annually at 2% to account for inflation.

To maintain the CHBA Qualified Net Zero designation, program participants must register with the CHBA annually by signing the Participant Agreement and Attestation and paying the corresponding participant registration fees.

2.0 ADMINISTRATIVE REQUIREMENTS – FOR THE HOMES

This section of the document provides information on the Technical Requirements for the homes and includes:

1. How to Qualify a New House
2. How to Qualify a Renovation
3. Home Label Numbering Convention
4. Net Zero/Ready Label Samples
5. Photovoltaic System Design and Reporting
6. Project Registration Workbook
 - General Information
 - Technical Information
 - PV Commissioning Report
 - NRCan PV Ready Checklist
 - Ground Mounted PV Ready Checklist
 - Verification Checklist
7. Space Cooling Information Sheet
8. Fireplace Information Sheet

2.1 How to Qualify a New Home

This is the process by which to have a new home qualified under the program:

Modelling, Construction & Evaluation

- Project is pre-enrolled with SO.
- EA provides consulting to builder and models the proposed design.
- Builder follows regular ERS procedure to notify SO of coming file submission.
- Builder builds home to meet Technical Requirements.
- Builder schedules final evaluation with EA. *(NOTE: Builder will receive labels from SO within 3 weeks of final evaluation.)*
- EA evaluates home per ERS protocol and is responsible for verifying compliance with the Net Zero Home Labelling Program Technical Requirements.

File Submission, Labelling and Registration

IF EA FINDS THE HOME DEFICIENT:

- EA arranges to re-evaluate the home once all deficiencies are corrected.

IF EA FINDS THE HOME COMPLIANT:

- EA sends HOT2000 files and Net Zero/Ready Project Registration Workbook to SO.
- SO performs QA on the files then submits HOT2000 file to NRCan for approval.
- Once approved by NRCan SO mails ERS and Net Zero/Ready labels to the builder.
- Builder affixes ERS and Net Zero/Ready labels to the homes' electrical panel, takes a photo and emails it to the SO.
- Once photo is received, SO registers final Net Zero/Ready file with CHBA by sending the completed Project Registration Workbook to NZHLP@chba.ca.
- CHBA reviews the file then posts it on the website.

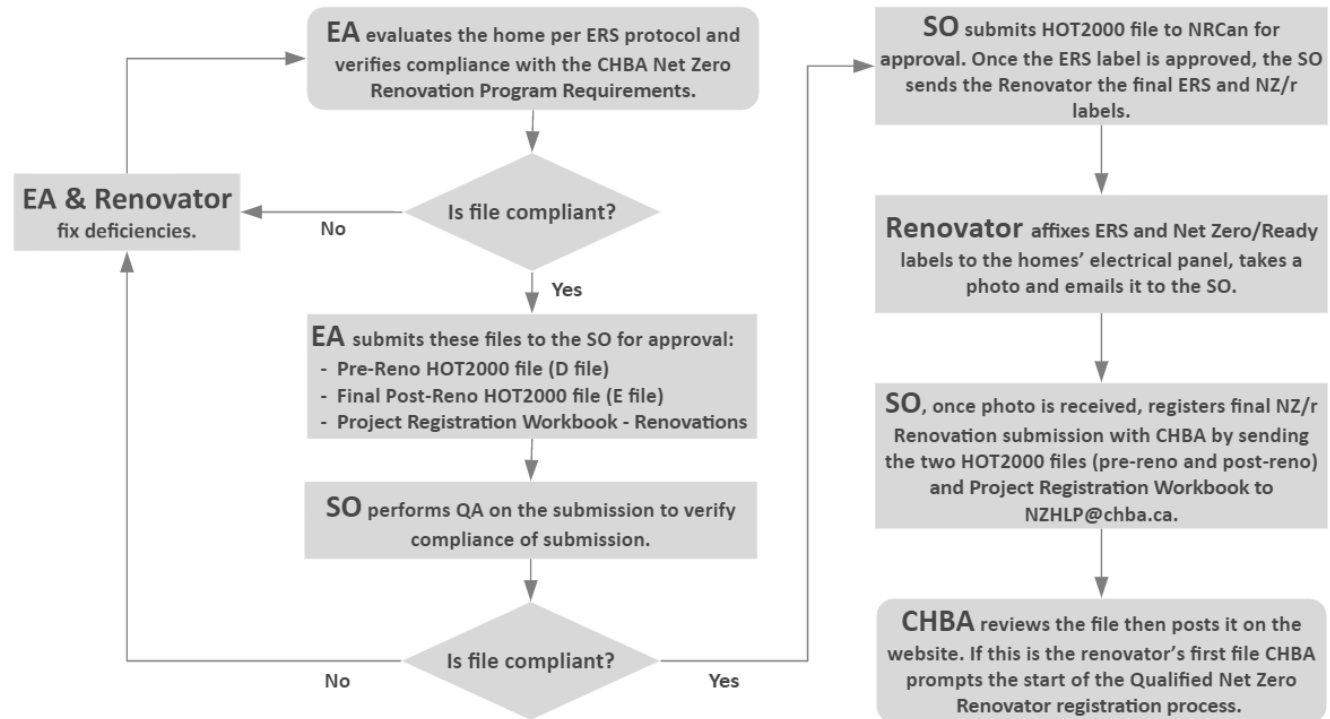
2.2 How to Qualify a Renovation

The following lists outline the administrative procedures for the Renovations Program. The Modelling, Construction & Evaluation process describes best practises between homeowner, Renovator and EA. The File Submission, Labelling & Registration process illustrates the required administrative procedures that shall be completed in order to receive a Net Zero or Net Zero Ready Renovation label.

Modelling, Construction & Evaluation

1. The first point of contact for the consumer is a CHBA Qualified Net Zero Renovator or a Renovator working towards the Net Zero qualification with CHBA. This will ensure that they are a CHBA Member, RenoMark® Renovator, have participated in Building Science Training, Net Zero Builder Training, and Net Zero Renovator Training.
2. The Renovator performs an initial assessment of the home to ensure that there are no critical safety or health issues that need to be addressed first, and then to decide if a Net Zero/Ready (NZ/r) Renovation is an option.
3. The Renovator engages a CHBA Qualified Net Zero Energy Advisor (EA) to complete an EnerGuide (ERS) evaluation and obtains a renewable energy generation assessment. This will provide an overview of the energy performance of the home. This HOT2000 (D File) is saved as the pre-reno file. The Renovator and the EA will work together to develop a Renovation Upgrade Report targeting NZ/r.
4. The Renovator develops an estimate with specific steps/phases - based on the clients' needs and budget - and presents this together with the ERS Renovation Upgrade Report to the client, explaining the benefits and results. (The renovator should also highlight any rebates/incentives that are available.)
5. The Energy Advisor pre-enrolls the project at www.chba.ca/NZRenos to indicate the intent to label the home.
6. The Renovator completes the NZ/r Renovation which can be done all at once or in stages. In a staged renovation the renovator re-engages the EA to get periodic updated ERS evaluations to show the homeowner the progress being made towards NZ/r, and to ensure the home is on track to meet all the label requirements.

File Submission, Labelling & Registration



Multiple EAs on a file

Adhere to the following requirements should multiple EAs participate in the creation of a single file:

- All EAs working on a Net Zero/Ready file must be registered as EAs with NRCan to deliver ERS.
- One EA, who is registered as a CHBA Qualified Net Zero Energy Advisor, must take full responsibility for the file and submit the file with their SO under their EA number.
- An EA who is not a Qualified Net Zero Energy Advisor may complete only the preliminary on-site data collection and the blower test.
- The Qualified Net Zero Energy Advisor taking responsibility for the file must complete all Net Zero Home Labelling Program tasks including but not limited to: The initial HOT2000 file, The final Proposed Design HOT2000 file, completion of all Net Zero Program calculations (ex. Building envelope & space cooling), the final on-site verification and the Project Registration Workbook.

2.3 Home Label Numbering Convention

Each CHBA Qualified Net Zero SO must assign a unique ID # for each NZ/r label. Please refer to the chart below. For example, “101-00001” would be the first label # for CHBA-BC.

Note: A Net Zero Renovation shall include RENO behind the unique ID #. For example, “101-00001RENO”.

Service Organization	NZ/r Label Number
CHBA – British Columbia	101-xxxxx
CHBA – New Brunswick	102-xxxxx
CHBA – Newfoundland and Labrador	103-xxxxx
EnerQuality Corporation	104-xxxxx
EnerTest Corporation	105-xxxxx
EnerVision Healthy Housing Choices	106-xxxxx
EnviroCentre	107-xxxxx
Homesol Building Solutions	109-xxxxx
Green Think Inc. (formerly Mindscape Innovations)	110-xxxxx
Sun Ridge Residential	112-xxxxx
ThermalWise	113-xxxxx
4 Elements Integrated Design	114-xxxxx
Map Energy Inc.	115-xxxxx
Green Canada Home Advisors Inc.	116-xxxxx

2.4 Net Zero/Ready Home Label Samples



THIS LABEL IS FOR THE FOLLOWING HOME:

BUILDER/RENOVATOR:

ENERGY ADVISOR:

SERVICE ORGANIZATION:

CHBANZH ID#:

DATE APPROVED:

This label indicates that this home is recognized by the Canadian Home Builders' Association (CHBA) based on the attestations by the builder, its Net Zero Qualified Service Organization and a Net Zero Qualified Energy Advisor, that the home has met CHBA's Net Zero Home Program Technical Requirements, including the energy performance rating according to the Government of Canada's EnerGuide Rating System. More information is available at www.NetZeroHome.com

THIS LABEL IS FOR THE FOLLOWING HOME:

BUILDER/RENOVATOR:

ENERGY ADVISOR:

SERVICE ORGANIZATION:

CHBANZH ID#:

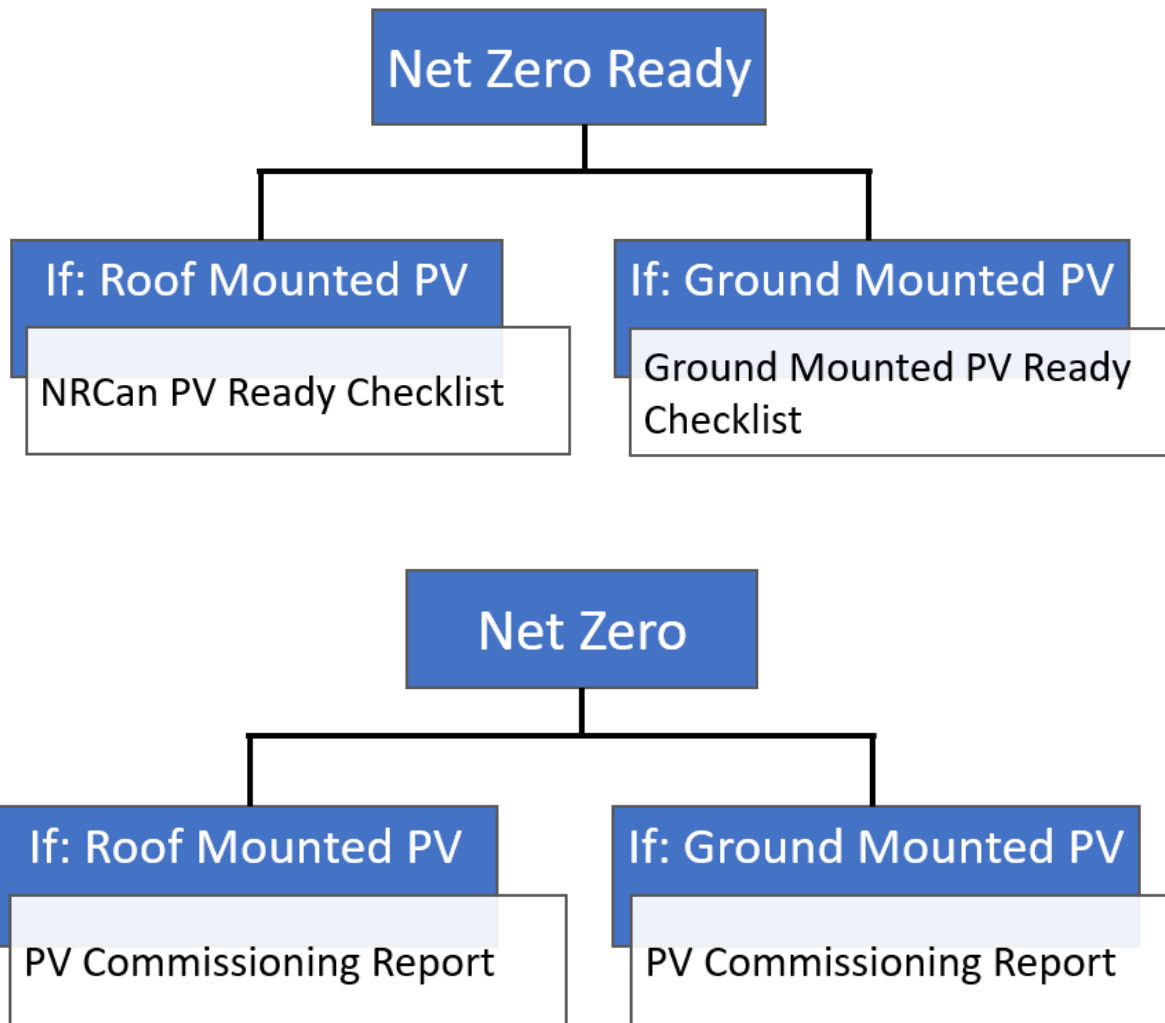
DATE APPROVED:

This label indicates that this home is recognized by the Canadian Home Builders' Association (CHBA) based on the attestations by the builder, its Net Zero Qualified Service Organization and a Net Zero Qualified Energy Advisor, that the home has met CHBA's Net Zero Home Program Technical Requirements, including the energy performance rating according to the Government of Canada's EnerGuide Rating System. More information is available at www.NetZeroHome.com

Note: A renovation is to use the same label as a new house.

2.5 Photovoltaic System Design and Reporting

This is the process by which the applicable PV reporting forms should be selected. In each situation only one PV reporting form is required to be completed and submitted. As shown in the diagram below, homes seeking a Net Zero label must complete the "PV System Commissioning Report" whereas homes seeking a Net Zero Ready label must complete the appropriate PV Ready Checklist which depends on the location of the planned PV array.



Net Zero Ready 3rd Party PV design

Energy Advisors are required to enter the renewable energy generation system information into HOT2000 for Net Zero Ready homes even though the system won't be installed. **It is recommended that builders (or Energy Advisors on behalf of the builder) consult a professional third-party solar designer in the creation of a photovoltaic (PV) system design.** HOT2000 produces accurate energy generation estimates although it does not take into consideration the many variable design factors that a professional solar designer provides, in order to ensure a suitably sized system can be installed in the future. The PV system design does not need to be a complete quote. It is intended to demonstrate that the new home is modelled to achieve Net Zero energy performance once the designed number of solar panels are installed in the location(s) shown in the design.

It is also recommended that this third-party PV system design be provided to the homeowner by the home builder. This benefits all involved stakeholders by ensuring that the homeowner has received documentation showing that the home has been modelled to achieve Net Zero energy performance should the modelled PV system be installed.

2.6 Project Registration Workbook

This section displays the worksheets within the Project Registration Workbook. Each worksheet identifies which Qualified Participant is expected to complete it. The Qualified Service Organization is expected to compile all the worksheets and submit them together in the form of this Project Registration Workbook, as outlined in the Administrative Requirements. The “Project Registration Workbook – New Houses” is shown below. Note that the “Project Registration Workbook – Renovations” includes minor differences.

1. General Information

This report shall be completed by the Qualified Net Zero Energy Advisor.

Net Zero Home

- 1 HOT2000 file modelled **WITH** the renewable energy system to 0 GJ
- Completed Project Registration Workbook (xls)

Net Zero Ready Home

- 1 HOT2000 file modelled **WITH** the renewable energy system to 0 GJ
- 1 HOT2000 file modelled **WITHOUT** the renewable energy system
- Completed Project Registration Workbook (xls)
- Photovoltaic System Design (recommended)

Site Information

NZ/r Label Number:	_____
ERS File Number:	_____
Site Address:	_____
City:	_____
Province/Territory:	_____
Program Version:	_____
Lot type:	<i>Greenfield:</i> <input type="checkbox"/> <i>Infill:</i> <input type="checkbox"/>

Participant Information

Builder

Company:	_____
----------	-------

Energy Advisor

Name:	_____
Email Address:	_____
Phone Number:	_____

Service Organization

Company:	_____
----------	-------

2. Technical Information

This report shall be completed by the Qualified Net Zero Energy Advisor.

General	
Energy Monitoring Device	
Make:	
Model:	

The inputs below will be auto-filled

% Better than Reference - Envelope	
Percentage:	--

Space Cooling Threshold	
	N/A

Building Envelope	
NRCan Reference house: Energy consumption summary report	
ERS Reference house	Value
a) Estimated space heating energy consumption	MJ

Annual space heating summary	
Space heating system load	Value
a) ERS Reference house	MJ
b) Proposed house with standard operating conditions	MJ

Building Envelope Performance Target	
Reference house space heating energy consumption	0 MJ
Space heating performance target	0 MJ
Estimated house energy consumption w/ reference HVAC	-- MJ
% improvement over code reference house	--

Space Cooling	
House Size	
Building parameters summary	Value
House volume	m ³

Space Cooling Loads	
Hot2000 report parameter	Value
Total annual sensible Load	MJ
Total annual latent Load	MJ
Total space cooling load	0 MJ

Space Cooling Requirement	
Estimated space cooling load	N/A MJ/m ³

3. Photovoltaic (PV) System Commissioning Report

This commissioning report shall be completed by the installer of the PV system. A copy shall be provided to the customer as part of the system documentation. Refer to the NRCAN PV Ready Guidelines for the design of the system.

Documentation

The system documentation should include, as a minimum, the following elements:

- As-built system drawings and specification sheets of all system components from suppliers/manufacturers
- Operations manuals of all system components from suppliers/manufacturers
- Verification of proper system installation, performance and operation (via tests & photos)
- Grid connection confirmation
- The installation is under warranty, including installer's workmanship and performance warranty
- Training/orientation to owner on basic system operation, typically at pre-delivery inspection

PV System Details

PV module make		Module nameplate rating		Number of PV modules	
Roof Mount	<input type="checkbox"/>	Wall Mount	<input type="checkbox"/>	Ground Mount	<input type="checkbox"/>
Make/model of other major system components (i.e. inverter)					
Horizontal tilt angle and azimuth (direction) of PV system on all planes					
System Peak DC Watts (as designed) - the product of the nameplate PV module rating and the total number of PV modules					
System Operational DC Voltage (as designed) - the input DC voltage rating of the inverter					
System Open Circuit DC Voltage (as designed) - the PV module open circuit voltage rating and the number of PV modules connected					
System Short Circuit DC Current - the nameplate PV module short circuit rating and the number of PV modules in the array					
Energy monitoring device make/model - real time energy consumption/generation information must be available to occupants					
Shut off/disconnect switch is clearly marked and visible - note location					

Array Tests

Solar conditions at time of the array tests (i.e. irradiance and temperature)					
Measure the open circuit voltage of each PV string of PV modules in series before they are interconnected and record					
Record the system DC Voltage - at string level or array level					
Record the system DC Current - if not available specify N/A					
Record the grid Voltage					
Record the system VAC - the Voltage between the inverter and the meter					
Record the system PAC - the energy the system is generating at one point in time (in Watts)					

4. NRCan PV Ready Checklist

Each of the following specifications shall be completed by the builder in accordance with Section II of the *Photovoltaic (PV) Ready Guidelines*.

1. On the Roof Completed

Roof orientation and mounting angles:

Area 1: _____ azimuth (degrees) _____ slope (degrees) or pitch (rise:run)

Area 2 (as required): _____ azimuth (degrees) _____ slope (degrees) or pitch (rise:run)

Area 3 (as required): _____ azimuth (degrees) _____ slope (degrees) or pitch (rise:run)

Unobstructed, unshaded roof space for PV system:

Area 1: _____ m² or ft² (circle one) Area 2 (as required): _____ m² or ft² (circle one)

Area 3 (as required): _____ m² or ft² (circle one) Total Area: _____ m² or ft² (circle one)

Consulted with municipality to determine needs for ridge setbacks and / or pathway access

Roof structure designed and constructed with Solar-Ready Trusses™ or equivalent and roof structure design will support additional loads of at least 0.17kPa or 3.5psf associated with PV system

2. PV Conduit and Utility Connection Conduits

Minimum one PV conduit, sized 2.5 cm (1") if metallic or 5.1 cm (2") if non-metallic, run from the attic or roof to the electrical panel location

Two utility connection conduits, sized 3.2 cm (1 1/4") run from the indoor electrical panel to the outdoor utility meter and back

3. Installation and Termination of PV conduit and Utility Connection Conduits

PV conduit installed entirely within the building envelope (except for section terminating above the roof if applicable)

PV conduit with bends / elbows greater than 45 degrees requires pull-rope installed; Check if pull-rope installed

Electrical panel termination workspace provided, conduit sealed and capped

Check one: Attic termination workspace provided, conduit sealed and capped

OR

Roof termination workspace provided, conduit sealed, flashed and capped

Utility connection conduits capped and sealed.

4. Space / Electrical Panel Rating / Breaker Slot / Network Communications

Designated wall space near electrical panel provided for PV hardware

Electrical panel will accommodate a PV supply breaker rated up to _____ Amperes in net-metering configuration

Available double pole slot at bottom of electrical panel for PV breaker

Wired network communications available: Check if network jack provided at designated PV wall space

6. Identification of Components

Copies of the *PV Ready documentation* have been included in the home-buyer's information package, filed with the local building permits office, and affixed to the designated PV wall space on-site.

7. Declaration, Name & Signature

I hereby confirm that the PV Ready upgrades have been installed in this house according to Section II of NRCan's Photovoltaic Ready Guidelines

Home Address _____ City, Province, Postal Code _____

Name _____ Signature _____

Company Name _____ Date (yyyy-mm-dd) _____

5. Ground Mounted Photovoltaic (PV) Ready Checklist

Each of the following specifications shall be completed by the builder.

	Completed
1. PV Array site	
Array orientation and mounting angle: Array 1: _____ azimuth (degrees) _____ slope (degrees) or pitch (rise:run)	<input type="checkbox"/>
Unobstructed, unshaded ground space for PV system: Array 1: _____ m ² or ft ² (circle one)	<input type="checkbox"/>
Consulted with municipality to determine requirement for ground mounted array	<input type="checkbox"/>
2. Installation and Termination of PV conduit and Utility Connection Conduits	
Two utility connection conduits, sized 3.2 cm (1 1/4") run from the indoor electrical panel to the outdoor utility meter and back	<input type="checkbox"/>
<i>Check one of the following:</i> Minimum one PV conduit or sleeve	
OPTION 1: PV conduit sleeve installed through building envelope, 10 cm (4") non-metallic, caulked, sealed, capped on both ends, stuffed with temporary insulation that is easily removable, and ready to facilitate installation of future PV conduit (as per PV design). This conduit sleeve shall be visible from the main electrical panel inside the	<input type="checkbox"/>
OPTION 2: PV conduit installed through building envelope, sized 2.5 cm (1") if metallic or 5.1 cm (2") if non-metallic, caulked, sealed, terminated at appropriately rated pull-boxes for future connection to future solar system (outside) complete with metering, and to inverters etc. inside	<input type="checkbox"/>
PV conduit with bends / elbows greater than 45 degrees requires pull-rope installed; <i>Check if pull-rope installed</i>	<input type="checkbox"/>
Workspace is provided around the electrical panel sufficient to accommodate future installation of solar equipment.	<input type="checkbox"/>
3. Space / Electrical Panel Rating / Breaker Slot / Network Communications	
Designated space either near the electrical panel or at the array site is provided for PV hardware and electrical connections	<input type="checkbox"/>
Electrical panel will accommodate a PV supply breaker rated up to _____ Amperes in net-metering configuration	<input type="checkbox"/>
Available double pole slot at bottom of electrical panel for PV breaker	<input type="checkbox"/>
4. Code Compliance	
Electrical Safety Code and Building Code inspections passed	<input type="checkbox"/>
5. Identification of Components	
Copies of the <i>PV Ready documentation</i> have been included in the home-buyer's information package, filed with the local building permits office, and affixed to the	<input type="checkbox"/>
6. Declaration, Name & Signature	
Home Address _____	City, Province, Postal Code _____
Name _____	Signature _____
Company Name _____	Date (yyyy-mm-dd) _____

6. Verification Checklist

This checklist shall be filled out upon completion of each Net Zero or Net Zero Ready Home by The Qualified Net Zero Energy Advisor with the Qualified Net Zero Builder.

Home Address:

2.1 Compliance with Building Codes and Regulations		Renovator	EA	N/A
2.1.1	Comply with local building code or regulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.1.2	Comply with the technical requirements of Canada's Energy Efficiency Regulations for regulated products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.1.3	Equipment and Technologies are commercially available, meet applicable North American Standards, and are suitable for the intended application.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Proposed House				
2.2.2	The annual space heating energy consumption (MJ) is at least 33% lower than the NRCan reference house.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2.3	The space cooling threshold is calculated, and if cooling load exceeds threshold, space cooling energy consumption is included in total annual energy consumption (if an ASHP is used, check "N/A").	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2.4	When modelled with renewables, net energy consumption of the proposed house is not greater than 0 GJ.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4 Energy Modelling				
2.4.1	0 GJ rating shall be achieved using modelling methods and calculations in conformance with ERS v15, using HOT2000 v11.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5 Renewable and Energy Production Systems				
2.5.2	Renewable energy generation technologies used comply with the current and applicable version of the relevant industry standard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5.3	Inverters and controllers comply with the current and applicable version of the relevant industry standard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5.4	Energy monitoring system that provides electricity production and consumption data is installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5.5	Solar domestic hot water systems comply with the current and applicable version of the relevant industry standard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Airtightness				
3.2.1	Whole house air leakage is less than or equal to one of the airtightness targets specified in Table 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Opaque Assemblies				
3.3.1	Effective thermal resistance of opaque assemblies are not less than those specified in Table 4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.2	Eligible insulation materials conform with the requirements listed in Section 3.3.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.3	Wall and floor assemblies below or in contact with the ground meet the requirements in Section 3.3.3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.4	Thermal resistance in ceilings below attics under sloped roofs is continuous to the outermost edge of the exterior wall excluding the extent imposed by the roof slope and minimum venting clearance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.5	Rim joists have a thermal resistance not less than that of walls above grade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Fenestration and Doors				
3.4.1	Fenestration systems are ENERGY STAR certified for the climate zone which they are installed, or comply with CAN/CSA-A440.2-14/A440.3-14, or comply with both National Fenestration Rating Council's NRFC 100 and NRFC 200 (except as provided in Section 3.4.1.2). Fenestration systems are constructed with minimum: double glazed low-e glass, inert gas-fill, insulated spacers, and a thermal brake or sash where it is metal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4.2	Exterior door systems are ENERGY STAR certified except where specified in Section 3.4.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1 Mechanical and Electrical Systems				
4.1.2	Electrical base loads (Lighting & appliances) are accounted for and off-set as described in Section 4.1.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3	Natural gas-fired and propane-fired equipment are equipped with electronic ignition and are independently vented with a sealed vent connected to either a direct-vent system or mechanically-vented system, unless otherwise permitted in Section 4.3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.4	Oil-fired stoves, fireplaces and water heaters comply with the most current and relevant industry standards (CAN/CSA/ULC) and with local code requirements. Oil-fired stoves, fireplaces and water heaters are of either type: direct-vent system, forced-draft system, or terminally mounted induced-draft power venter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.5	Combustion air supply ducts and damper systems serve no more than one piece of equipment. Combustion air supply for space or water heating equipment terminating in conditioned space is equipped with an approved device to control unintended air leakage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.6	Unvented fuel-fired appliances are not permitted as described in Section 4.1.6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.2 Heating and Cooling Systems				
4.2.1	Space heating and space cooling systems are sized in accordance with CSA F280-12. Calculations are preformed outside of HOT2000.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.2	Hydronic heating systems comply with CAN/CSA B214-16.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.3	Air-source heat pumps shall be of the type regulated under Canada's Energy Efficiency Regulations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.4	Ground or water source energy systems comply with ANSI/CSA C448 SERIES-16.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.5	Natural gas and propane fireplaces are direct-vent (sealed) and pilot-on-demand without a standing pilot light.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3 Systems Providing both Space and Water Heating				
4.3.1	Combined space and water heating systems are of the condensing type and comply with CSA P.911.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.2	Integrated Mechanical Systems are of the condensing type and comply with CSA P.10-07.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4 Solid Fuel Burning Appliances				
	Solid fuel burning appliances comply with the requirements of Section 4.4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5 Domestic Hot Water Systems				
4.5.1	Gas-fired instantaneous water heaters are certified to CAN/CSA P.7-10 (R2015).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6 Water Heating Energy Conservation				
4.6.1	Drain water heat recovery units conform to CSA B55.2-15 and the minimum efficiency is in conformance with CSA B55.1-15.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7 Ventilation Systems				
4.7.2	The principle ventilation capacity is achieved through either a heat recovery ventilator (HRV) energy recovery ventilator (ERV) or integrated mechanical system (IMS).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.3	Ventilation systems are designed in accordance with 4.7.3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.4	HRV's and ERV's shall be of the type that is regulated under Canada's Energy Efficiency Regulations or ENERGY STAR certified. Integrated HRV air handlers shall be tested to Section 8 of CSA P.10-07(R2012) and have a defrost mechanism.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8 Air Distribution Systems				
	Air distributions Systems comply with the requirements of Section 4.8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Indoor Air Quality Checklist

This checklist shall be filled out upon completion of each Net Zero or Net Zero Ready Home by the Qualified Net Zero Builder/Renovator with the Qualified Net Zero Energy Advisor. As per the Qualified Net Zero Participant Agreement and Attestations, each participant must attest that the homes they submit for labelling meet all of the Program Requirements. Additional detail for each IAQ measure can be found in the notes in column A.

Home Address:

Verify completion of all Mandatory IAQ Requirements.

Mandatory IAQ Requirements	Builder/Renovator	EA
The whole house air leakage is ≤ 1.5 ACH@50pa for detached homes and ≤ 2.0 ACH@50pa for attached homes or meets or exceeds one of the other applicable targets specified in Table 3 of the Technical Requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Slab insulation is installed. Comply with section 3.3.1 of the Technical Requirements. (renovation exemption)	<input type="checkbox"/>	<input type="checkbox"/>
Unvented fuel-fired combustion appliances are not installed in the home (except for natural gas and propane cooking appliances).	<input type="checkbox"/>	<input type="checkbox"/>
An active Heat Recovery Ventilator (HRV) or Energy Recovery Ventilator (ERV) with balanced ventilation is installed.	<input type="checkbox"/>	<input type="checkbox"/>
Ducts shall be sufficiently sealed as described in the Technical Requirements. (renovation exemption)	<input type="checkbox"/>	<input type="checkbox"/>
Air filters with a minimum MERV 8 or higher on all recirculating space conditioning systems.	<input type="checkbox"/>	<input type="checkbox"/>
Newly applied interior paints and painting finishes are low-VOC or no-VOC emitting products.	<input type="checkbox"/>	<input type="checkbox"/>

Select an additional 6 points from the Optional Picklist below.

Note: Net Zero and Net Zero Ready Renovations using an entirely exterior approach are only required to meet the Mandatory IAQ requirements shown above.

Optional Picklist	Builder/Renovator	EA
Site-applied interior adhesives and sealants are low-VOC or no-VOC emitting products.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Natural interior coatings are used.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Wood sheathing products used within the building envelope (e.g.: sub-flooring) are certified UF free.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Insulation is low-VOC, non-emitting, or exterior to the vapour barrier.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
No carpeting is installed, or carpeting is certified Green Label Plus by the Carpet and Rug Institute (CRI).	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Hard surface flooring is factory finished and low-VOC or non-emitting.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Gypsum boards are low-VOC or no-VOC emitting products.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
No combustion-based cooking appliances installed in the home.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
No natural gas, propane, or wood fireplaces installed in the home.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
During construction all ducts and vents are sealed.	(½ point) <input type="checkbox"/>	<input type="checkbox"/>
Following construction all ducts and vents are vacuumed (including fan blades).	(½ point) <input type="checkbox"/>	<input type="checkbox"/>
Recirculated air is filtered to minimum MERV 10 (1 point), MERV 13 (2 points), or HEPA (3 points).	(1,2 or 3 points) <input type="checkbox"/>	<input type="checkbox"/>
ENERGY STAR certified air purifier with a minimum Clean Air Delivery Rate of 100 cfm. When unit(s) are sized for less than 50% of the home (1 point) and when sized for greater than 50% of the home (2 points).	(1 or 2 points) <input type="checkbox"/>	<input type="checkbox"/>
Supply air flow rates are 3rd party tested and verified. (Includes both ventilation and space conditioning)	(2 points) <input type="checkbox"/>	<input type="checkbox"/>
ENERGY STAR certified kitchen range hood and < 300 cfm.	(½ point) <input type="checkbox"/>	<input type="checkbox"/>
Multi Zoning of HVAC systems installed.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Permanent dehumidification installed in HVAC system (ERV is not acceptable).	(2 points) <input type="checkbox"/>	<input type="checkbox"/>
Energy Recovery Ventilator (ERV) is installed.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
ENERGY STAR certified stand-alone dehumidification system provided to occupant.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>
Passive (0-1 point) or active (1-2 points) radon mitigation system is installed. See note.	(1 or 2 points) <input type="checkbox"/>	<input type="checkbox"/>
Constant Indoor air quality monitoring that is connected to ventilation controls.	(1 point) <input type="checkbox"/>	<input type="checkbox"/>

2.7 Space Cooling Information Sheet

Homes built to the Technical Requirements of the CHBA Net Zero Home Labelling Program are built with extremely high levels of insulation and airtightness. This keeps the heat in and the cold out during the winter, dramatically reducing energy bills. In the summer, it helps keep the house cool, unless heat gains inside the house occur, at which time the house will keep the heat in. Net Zero Homes are built to avoid excessive heat gains, but under certain conditions, heat gains can occur.

Heat gains include solar gains through windows and skylights, as well as internal heat gains, which include heat generated by occupants and equipment inside the building like refrigerators, dryers, cooking equipment, lighting, and other devices which generate heat as part of their operation.

To avoid overheating and to ensure occupant comfort, every Net Zero Home is required to undergo an assessment of whether it surpasses a threshold for space cooling. **If the cooling load exceeds the threshold, it is highly recommended that a space cooling system be installed in the home.**

However, installing and using a space cooling system is a homeowner choice. Homeowners can rely on other methods for cooling the house if they find it too warm, such as opening windows and using fans. They may also not be concerned with above average temperatures in the home from time to time. Accordingly, **cooling systems are not mandatory in Net Zero Homes, but builders must offer such systems to the homebuyers as an option, though homebuyers can opt out of such systems if they prefer not to have them installed.**

2.8 Fireplace Information Sheet

CHBA Net Zero Home Labelling Program for Renovations FIREPLACE INFORMATION SHEET FOR HOMEOWNERS

All fireplaces produce heat and combustion gases as the fuel burns. Normally, these combustion products – which can include both visible smoke and various invisible gases – are vented to the outdoors through a chimney or vent pipe. Unfortunately, they may on occasion escape into your home, where they could raise a variety of health and other concerns.

Combustion spillage is a term for the unwanted flow of combustion gases into your home. The quantities involved are usually small. However, each year major or long-term incidences of combustion spillage do occur – sometimes with serious or tragic results. Because toxic compounds can be present in combustion gases, the presence of these gases in household air can lead to problems ranging from nuisance headaches to serious illness, carbon monoxide (CO) poisoning and even death.

Because your home has a fireplace (or other solid fuel burning appliance) that you have decided to keep as a functioning fireplace, and even though you have fitted it with an EPA or CSA B415 certified fireplace insert, a requirement of the CHBA Net Zero Labelling Program for Renovations—and a benefit to you—is that **we will conduct a depressurization test to measure the risk for combustion spillage**. To reduce the risks associated with combustion spillage it is a requirement in the CHBA Program that your home has a pressure differential of less than 5 Pascals. If the test result exceeds 5 Pascals pressure difference, your CHBA Qualified Net Zero Renovator must make adjustments to the exhaust appliances and ventilation devices in your home to reduce the pressure difference to an acceptable level, in order to label under the CHBA Net Zero Renovation Program.

Your Renovator will provide you with NRCan’s “Combustion Gases in Your Home – Things You Should Know about Combustion Spillage” document which is available online at <https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-homes/combustion-gases-your-home-things-you-should-know-about-combustion-spillage/18639> to alert you to some of the indicators and outline practical steps you can take to reduce the risks. You will learn how to keep combustion gases OUT of your home. As a last line of defense, it is required that carbon monoxide alarms be installed as indicated in the Net Zero Renovation Technical Requirements.

Learn more about energy efficient housing from Natural Resources Canada at <http://www.nrcan.gc.ca/energy/publications/17756>

For more information on the CHBA Net Zero Home Labelling Program visit www.NetZeroHome.com