

Albrecht, Linda

From: David Carlson [dcarlson@culminex.com]
Sent: 2014 April 10 3:20 PM
To: Albrecht, Linda
Subject: Presentation to council about the proposed flood amendments to LUB IP2007

I am hoping to address the council for 5 minutes when they consider the flood related land use bylaw IP2007. I believe this is scheduled to be heard before council on May 12.

My house is located in the floodway and would be adversely affected by the proposal. My issue is that is much more strict than the province requires, so it is much more strict than it actually needs to be. Given the mitigation measures that will be undertaken by the city, there is no need for the city to exceed provincial requirements.

Please let me know how I can get on the agenda.

Thanks,

David Carlson
Homeowner: 416 Roxboro Road SW (ward 9)

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Albrecht, Linda

From: Sharon Look [sharon.look@shaw.ca]
Sent: Thursday, April 17, 2014 10:04 AM
To: Albrecht, Linda
Subject: Submission re Land Use Bylaw Changes re Flood Recovery Public Hearing May 12th 2014

Please find below our Submission re Land Use Bylaw Changes re Flood Recovery Public Hearing May 12th 2014.

We were instructed to forward it to this email address at least two weeks before the hearing.

Please contact us if you have questions or require further information.

Thank you.

SUBMISSION:

On April 15th, I attended the information session at the Municipal Building regarding the proposed bylaw changes for those residing in the "identified flood hazard area". I also carefully reviewed the more detailed information on these bylaw changes available on the City of Calgary website.

The proposed changes have serious and significant property value and redevelopment implications and are being arbitrarily applied to some properties and not others based on inaccurate maps.

It is well known that the maps the city are using are outdated provincial maps that were suppose to predict what would happen in a 1 in 100 year event. These maps do not take into consideration any changes since they were drawn years ago; for example, the Inglewood berm.

Why would the city not instead use the obviously more accurate actual event of June 2013 that vividly demonstrated what properties are in the flood fringe, floodway, and overland flood way?

We own 3 properties in various and different areas of Inglewood.

One of them we live in.

One of them our daughter and her husband and my disabled brother lives in.

The other home is rented out.

All of them are partially or fully in what the Alberta government maps' call the "flood fringe".

BUT all of them, did NOT get a single drop of water in their basements -- no overland flow, no ground seepage, no sewer backup.

Yet we see no place or mechanism in the new bylaws where we could challenge our properties (and those of many of our neighbours who were also "dry") being assigned to the "identified flood hazard areas".

It therefore seems unfair and unjust that this new bylaw should apply to "what was thought might happen" rather than to "what actually happened and therefore what would be likely to happen in the future" in the case of a 1 in 100 year event.

Surely, maps need to be updated to reflect reality (rather than to reflect old, inaccurate predictions) prior to this bylaw being arbitrarily imposed on some homeowners and not others.

Thank you for listening to our concerns,

Sharon Look and Hubert (Hugh) Colohan
Box 46037 Inglewood RPO
Calgary, Alberta
T2G 5H7

Email: sharon.look@shaw.ca
Phone: 403 275 2829 or cell 403 585 2792

April 30, 2014

Office of the City Clerk
The City of Calgary
700 Macleod Trail SE
P.O. Box 2100, Postal Station "M"
Calgary, Alberta T2P 2M5

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2014 MAY -1 A 8:11

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Cc:
His Worship Mayor Nenshi
Alderman Gian-Carlo Carra
City Councillors

My name is Scott Laird and my wife and I own and reside at 512 Rideau Rd SW. This is a home in the flood fringe that existed on the property well before 1985. We acquired the home in 1986 with all of the attributes currently assigned to it under LUB 1P2007. We have made significant improvements to the property over the years with the appropriate development applications to the City of Calgary.

I am writing regarding the proposed changes to LUB 1P2007 as outlined in the Administration Report to Calgary Planning Commission dated March 27, 2014 ("M2014-007").

I was initially very concerned about the potential impact on the value of our property due to proposed changes to Section 59 that would impose setbacks from the Elbow River without regard to the fact that the parcel was developed prior to 1985. It is now my understanding that M2014-007 was amended at the Calgary Planning Commission on March 27, 2014 such that our property will remain "grandfathered" from those setback requirements. I trust that my understanding is correct in this regard.

I also understand, however, that among the remaining recommendations it would be possible in the event that we wished to alter or add to our home in a manner requiring a development permit that the City could require relocation of all electrical and mechanical equipment above the designated flood level. I believe that is a fair and sensible practice for new builds where that can be incorporated into the design. However, I think it would be logistically and financially prohibitive in most cases for a retrofit.

Approving this change would place a restriction on the ability to improve or expand a home within the guidelines that would otherwise apply and could impair its resale value. As such I oppose it and urge Council not to approve it.

Respectfully submitted.

Scott Laird
512 Rideau Rd. SW
Calgary, Alberta T2S 0R6

(403) 619-7230

Albrecht, Linda

From: Michael Best [michael.best@screenflex.ca]
Sent: Wednesday, April 30, 2014 7:57 PM
To: Albrecht, Linda
Subject: My comments on the proposed changes to the Flood Fringe and Overland Flow section of Land Use Bylaw 1P2007

It seems that my councillor would prefer that my comments be directed to the City Clerk rather than himself. Therefore, please see a copy of my comments sent earlier today:

Mayor and Councillors:

I am sure that you do not need a reminder of the impact of the 2013 flood and the consequent cost of financial and emotional recovery. Our circumstances are not unique – neither with regard to the impact of the flood nor the impact of the proposed bylaw changes noted above. Those circumstances include a nearly 100-year-old-house on a narrow lot with a furnace, fuse box and other similar items located in the basement for all that time. To now impose the proposed changes without grandfathering concessions would effectively mean that we could never undertake renovations without incurring the impossible-to-accommodate proposed bylaw changes. The inevitable financial impact of the proposed changes, at this stage of our lives, will be devastating in our circumstances without a grandfathering concession – most particularly in the event of a sale of our property.

Fast tracking these changes when flood survivors are still coming to terms with the lasting devastating impact of the flood, and also particularly as flood season approaches, seems unnecessarily hasty and harsh. With all due respect, the proposed changes will do nothing to improve public safety nor will they improve flood protection.

We cannot afford to lose any more value on our homes. The proposed changes go far beyond what the AEMA's DRP requires and there appears to be no valid reason for the City to exceed that, particularly as the City is not required to fund our personal property rebuilding; insurance companies, the DRP and our own pockets have taken care of that.

A less-hasty and more considered approach to these proposals is called for. But regardless of the process, in the interest of the traditional fairness upon which our society is built, grandfathering in this instance should be beyond questioning. Nothing will undermine trust in our City government and contribute to insecurity more profoundly than the passing of retroactive bylaws, as proposed in this case.

Therefore, on behalf of my family and on behalf of all my neighbours in similar circumstances, I implore you to not accept the City Administrations recommendations on these proposed changes to the LUB 1P2007 at the May 12th meeting.

Sincerely,

Michael Best
3017 – 4th Street SW.

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Albrecht, Linda

From: M Scratch [marcy.scratch@gmail.com]
Sent: Thursday, May 01, 2014 8:30 AM
To: Sutherland, Ward; Magliocca, Joe; Stevenson, Jim E.; Chu, Sean; Commn. & Community Liason - Ward 5; Pootmans, Richard; Farrell, Druh; Woolley, Evan V.; Carra, Gian-Carlo S.; Chabot, Andre; Pincott, Brian; Keating, Shane; Colley-Urquhart, Diane; Demong, Peter; Albrecht, Linda
Subject: STOP Proposed changes to Land Use Bylaw 1P2007

It has been almost one year since the flood and, unfortunately, we continue to find ourselves fighting against well-intentioned, but ill-conceived policies.

The proposed amendment to the Land Use Bylaw 1P2007 will be both punitive and ineffective; The design criteria required by this amendment exceeds that imposed by the Provincial government, and the amendments will neither improve flood protection for our fringe and overland flow areas or increase public safety.

Please, let's focus our combined efforts on policies that will protect our communities and citizens going forward, instead of using our valuable financial and human resources to implement and enforce this proposed policy.

STOP the amendment to Land Use ByLaw 1P2007.

Respectfully,

Marcy Scratch

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Albrecht, Linda

From: Paul Battistella [paul@battistella.ca]
Sent: Thursday, May 01, 2014 8:40 AM
To: Albrecht, Linda
Subject: Bylaw11P2014
Attachments: Letter Re Bylaw 11P2014.PDF

Please find attached my letter with regards to bylaw 11P2014. If you could please confirm that it has been received and will be included in the agenda items for Council's consideration on the May 12 hearing it would be appreciated.

--

Paul Battistella
1432 1st St. SW
Calgary T2R-0V8
ph: 403.264.2992
fax: 403.264.2253
www.battistella.ca



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Your Worship the Mayor and Members of Calgary City Council,

With regards to Bylaw 11P2014:

My name is Paul Battistella. I am a resident of Elbow Park and my home was seriously damaged during last year's floods.

This letter is to highlight the punitive impacts on homeowners of the proposed bylaw changes, and to suggest possible options for your consideration

The proposed bylaw changes are being done under the pretext of an immediate need, creating a false sense of urgency, yet these changes will have little impact on homeowners until they re-develop. Most damaged homes have already begun to rebuild. There has been no public consultation; therefore the effects of these changes have not been properly assessed by the administration.

The proposed bylaw changes eliminate the grandfathering provisions of the land use bylaw in place since 1985 (making most homes in the FHA legal non-complying). Any development requiring a DP will be required to comply with these new rules.

The following summarizes the proposed changes:

- 1) Development in the Floodway will be on existing footprint, with a discretionary permit. (Sec. 57)
- 2) Comply with all new set back rules. (Sec. 59). Eliminates grandfathering.
- 3) Move both mechanical (furnace, hot water tank, boilers, humidifiers, ductwork etc) and electrical above flood elevation level (main floor or higher). Eliminates grandfathering. (Sec. 60 and 61).
- 4) Exempt City work from requiring a DP. (Sec. 25.1, 58).

The purported rationale for the bylaw change and our responses to them are:

- 1) To co-ordinate requirements of the land use bylaw with actions of the province.

Response: The Province does not have set back requirements from the river; does not require mechanical systems to be moved out of basements; provides options for locating the electrical panels (plus reimbursing home owners for the 100% of the cost). These changes are optional and are only required if DRP funding is accessed. The City has gone substantially past the Province's requirements without substantive rationale.

- 2) To maximize public safety.

Response: Typically safety issues are the purview of the Alberta Building Code not the land use bylaw. No safety issue has been identified that will be remedied by the bylaw changes. In a flood event all the power and gas to the flood affected areas are shut off and home owner safety is not compromised.

- 3) To minimize property damage for individual home owners.

Response: The cost to move mechanical and electrical far exceeds the cost to replace in existing locations in the event of a flood. Mechanical and electrical systems are covered by insurance in the basement, but not on the main floor during a flood. The City does

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not reimburse any costs, so has no economic interest and is intervening itself unnecessarily.

Impact of the Proposed Bylaw Changes

1. Most homes will become legal non-complying and will have to comply at any subsequent DP application. The changes are punitive to homeowners who have already endured massive financial losses, and rebuilt their home. The requirement to comply will reduce a home's value as the cost to comply will be factored in when a home is being sold.
2. Significant cost and logistical issues to homeowners to move mechanical and electrical components from the basement to main floor or higher. Imagine in your own home you would accommodate this on your main floor and the consequences of having to re-duct and rewire to comply.
3. Limits economic life of a home due to limitations on redevelopment. Why renovate an existing home when the requirements are arduous and financially prohibitive? This will negatively affect affordability in these areas as it will make more sense to demolish older housing stock than to renovate.
4. Will result in loss of heritage homes as it is less prohibitive to demolish and rebuild than to raise floor elevations, comply with setbacks and to move mechanical and electrical systems.

Options

- 1) Refer it back to administration and CPC for public and industry consultation. There is no urgent need to make these changes immediately. Another 6 months or a year will have no significant effect on what is developed.
- 2) Grandfather all existing development as per the current bylaw, and apply this only to new developments. Let the Province through the DRP and the Alberta Building Code address these issues for existing developments. A draft of the wording is attached as an appendix.

I will endeavor to be in attendance at the hearing on May 12. I am available for any questions before by email at paul@battistella.ca

Yours Sincerely,



Paul Battistella

May 1, 2014

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Attention: Mayor Nenshi and City of Calgary Councillors

2014 MAY -1 A 9:48

THE CITY OF CALGARY
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Re: Proposed Amendments to Land Use Bylaw 1P2007 for the Flood Hazard Area

The **Calgary River Communities Action Group Association (CRCAG)** is a group of nearly 1000 flood impacted residents dedicated to: (1) obtaining flood prevention infrastructure for Calgary and Southern Alberta; (2) maintaining the fundamental integrity of our established communities; and (3) seeking policy and means by which property and value can be restored. As representatives of CRCAG, we have reviewed the proposed changes to the Land Use Bylaw (LUB) 1P2007 to address flood areas citywide (the "Proposed Amendments") and the Administration Report to the Calgary Planning Commission dated March 27, 2014 (the "Administration Report") and we have serious and immediate concerns.

In particular, the Administration Report states "Administration is ***not soliciting feedback*** on these amendments as they were developed to address the safety of affected individuals and the city as a whole." We fail to understand how many of the Proposed Amendments address the safety of individuals or the city as a whole, which is discussed further below. We find it offensive that the Administration is attempting approval of Proposed Amendments that will have significant impact on homeowners without soliciting any feedback.

The Administration Report further states that the "proposed rule changes also seek to minimize public confusion by ensuring that Calgary's approach ***mirrors that of the Province***", with reference to the Province's policy with regard to future entitlement to Disaster Recovery Program (DRP) funding. We fail to understand how many of the Proposed Amendments mirror the Province's approach, which is discussed further below.

Summary of Key Concerns

In particular, we have concerns about the following proposed amendments to the Land Use Bylaws:

1. **Amendment to 60(1) to remove the grandfathering provision currently available for all buildings in the flood fringe existing at September 9, 1985 and Amendment to 61(1) to remove the grandfathering provision currently available for all building in the overland flow area existing at June 21, 1999.**
 - Based on the Rationale provided in the Administration Report for these amendments, they mean that a number of buildings located in the flood fringe and the overland flow area will become non-conforming buildings. The amendment will impact these buildings when the homeowner seeks to do an addition. At that time, Administration can review the non-conformity and can impose the design criteria set out in 60(1) and 61(1), as the case may be, on the addition or the principal building as part of an approval for a development permit and can refuse and application if the applicant does not wish to comply.
 - The design criteria set out in 60(1) and 61(1) is onerous to impose on an existing building, as it requires, for buildings in the flood fringe, a design (a) to prevent structural damage by floodwaters; (b) that has the first floor of the building constructed at or above a designated flood level; and (c) all electrical and mechanical equipment within a

building located at or above the designed flood level. Similar requirements are set out in 61(1) for buildings in the overland flood area.

- Our interpretation of these amendments, is that if the owner of a home built, for example, in the early 1900's in East Elbow Park in the flood fringe, were to apply to the City for a development permit to build an addition onto the home, e.g., an enlarged kitchen or a mudroom, that the City could deny the permit unless the homeowner moved all of the electrical and mechanical equipment in the house to the main floor. That is, the electrical panel, the furnace and the hot water tanks would need relocation from their typical location, in the basement, to the main floor of the home. Although we do not know the exact cost to relocate such equipment in a home like this, it is reasonable to imagine that it would be orders of magnitude higher than the cost to replace that equipment in the event of damage by flood water. The approximate cost to replace a furnace, a hot water tank and an electrical panel – if damaged by flood water – is \$10,000 or less. The cost to re-duct and re-wire an existing home to relocate this equipment upstairs would most certainly dwarf the replacement cost.
 - **There is absolutely no safety issue addressed, either for the individual homeowner and occupants nor the city as a whole, by this amendment.** If there is a flood, the homeowner and occupants will be evacuated from the premises and the City of Calgary will shut off electricity to the home. Whether or not the electrical and mechanical equipment is located in the basement or on the main floor will have no bearing on the safety of the homeowner or the safety of anyone else.
 - **This Amendment does not mirror the requirements of the Province.** These proposed amendments only align with the Province's objectives for **total rebuilds** for homes that were irreparably damaged in the flood fringe, as set out in STANDATA Building Code Bulletin 06-BCB-010, dated September 20, 2013 (**Attachment A**). However, for the majority of homes in the flood fringe, they are being **repaired** rather than totally rebuilt, in which case the appropriate STANDATA Building Code Bulletin to reference is 06-BCB-009R1, dated August 15, 2013 (**Attachment B**).
 - The requirements set out in the August 15, 2013 Bulletin (**Attachment B**) are considerably less onerous than required by the Proposed Amendments. There is no requirement to relocate the electrical or mechanical systems to the main floor. There is a less onerous requirement that a safe means to de-energize and re-energize the building be provided, e.g., installing a weather proof service disconnect switch on the outside of the building.
 - Although these building requirements may make sense for a home being built after the effective date of the amendments, to impose these requirements on existing homes when renovations or additions are occurring that require a development permit could have such a financial impact as to render many homes paralyzed from future improvements, with a corresponding significant impact on property value.
2. **Amendment to 59(1) to remove the grandfathering provision currently available for parcels that were not vacant on July 22, 1985.**
- Based on the Rationale provided in the Administration Report, we understand this Amendment will result in a number of buildings becoming non-confirming, which will impact the building when the homeowner seeks to do an addition. At that time, the Administration can review the non-conformity. We also expect this Amendment will

impact the parcel is the homeowner seeks to remove the existing structure and build a new building.

- The impact on property value caused by this Amendment could be considerable for a number of homes located in the flood fringe or overland flow area. There are dozens of homes in Calgary that are river front parcels of land with buildings located in the flood fringe (rather than the floodway). This Amendment will require a set back of any buildings on those parcels of 60 metres from the edge of the Bow River, 30 metres from the edge of the Elbow River and 6 metres from the edge of the floodway. Considering the depth of certain parcels of land, and other building requirements, e.g., set-backs from the front street, the building envelope for these parcels could be effectively eliminated or reduced to an unusable area. The potential reduction in property value is alarming.
- **There is absolutely no safety issue addressed, either for the individual homeowner and occupants nor the city as a whole, by this amendment.** If there is a flood, the homeowner and occupants will be evacuated from the premises before the onset of danger. Using the Elbow River as an example, whether the home was built 10 metres, 20 metres or 30 metres from the edge of the Elbow River will make no difference. The occupants of the home will not be present in the building at the time of flooding and will be out of harm's way.
- **This Amendment does not mirror the requirements of the Province.** The only requirements of the Province referenced in the Administration Report were those relating to future entitlement to DRP funding. To our knowledge, the Province has not made future DRP entitlement contingent on the set-back of a building from a river's edge.

In considering amendments to the LUB, the Administration should be cognizant of how many flood impacted homes were damaged not by overland flood water, but by sewer back-up entering the home. The communities of Sunnyside and Hillhurst are prime examples, where the City's sewer system was the primary contributor to property damage.

The Administration Report states (p. 6) that the "Province of Alberta is changing their policy regarding funding opportunities [we presume a reference to the DRP] for flood hazard areas; therefore, it is prudent of Administration to propose changes to the City's regulations to reflect these policies. **Going beyond the provincial mandate would be much larger in scope and require significant stakeholder engagement.**" (Emphasis added)

The Administration has very clearly, in our view, gone beyond the provincial mandate (i.e., see Attachment B), and is imposing significantly more onerous requirements on homeowners than the Province has imposed. Furthermore, the Province's policy is directed toward determining entitlement to future DRP funds. As flood impacted homeowners are well aware, DRP funds typically cover a very small percentage of actual losses incurred, and homeowners make up the difference on their own. To now impose these stringent LUB Amendments on the same set of homeowners is an unfortunate example of the Administration further financially penalizing these homeowners and devaluing their properties.

Impact of the Proposed Amendments

- Most homes in the Flood Hazard Area (FHA), which includes the flood fringe, overland flow areas and the floodway, will immediately become non-conforming.

- If a homeowner in the FHA applies for a Development Permit (DP), e.g., to build an addition, and the home is non-conforming, the City can impose flood mitigation design criteria on the addition and the existing home or refuse the DP for failure to comply.
- Imposing flood mitigation design criteria can mean: requiring compliance with setbacks from the river (e.g., 30m for Elbow, 60m for Bow); raising the height of the main floor above the flood level for the area; and moving the electrical and mechanical equipment above the flood level (i.e., moving the furnace, hot water tank and electrical panel out of your basement). The homeowner will have to find room in their home above the flood level to accommodate the re-located electrical and mechanical equipment.
- The costs to comply with the flood mitigation design criteria (e.g., re-location of electrical and mechanical equipment, including significant re-wiring and re-ducting) could easily rise into the tens of thousands of dollars, rendering existing FHA homes paralyzed from any future renovations requiring a DP. The City must consider the impact on the value of these homes and the overall neighbourhood property values.
- Limits the economic life of existing homes in the FHA due to financially restrictive limitations on renovations and additions, if flood mitigation design criteria are enforced in every instance of a DP.
- Will result in the loss of heritage homes in well-established, 100+ year old inner city neighbourhoods, as it will become less prohibitive to demolish and rebuild than to comply with the proposed flood mitigation design criteria, i.e., raising the main floor elevation and moving electrical and mechanical systems.

Options

CRCAG sees at least three options that are far more palatable than approving the Proposed Amendments.

1. Disapprove the Proposed Amendments for the Flood Hazard Area in their entirety.
2. Refer the Proposed Amendments for the Flood Hazard Area back to Administration and the Calgary Planning Commission for substantive review and revision. Insist on full, complete and meaningful public consultation and feedback. There is simply no urgency in making these amendments at this time.
3. Revise the Proposed Amendments to maintain the existing Grandfathering provisions for existing homes, and consider appropriate amendments that would be applicable to complete re-builds only.

Summary

The Administration has put forth the Proposed Amendments under the pretext of an immediate need and citing public safety as a reason to avoid due process. The Administration states two goals for the Proposed Amendments: public safety and mirroring of the Provincial requirements. The Proposed Amendments fail to achieve either goal. Public safety is not improved by imposing these Proposed Amendments on existing homes in the FHA. The Provincial requirements for homeowners in the FHA to access future DRP funding are far less onerous, and the Proposed Amendments go well beyond these requirements.

Even if adoption of the Proposed Amendments minimizes personal property damage, the cost outweighs the benefit at the homeowner level. The City contributed nothing to homeowner's to repair their flood damaged homes – the majority of the cost was borne by the homeowner, with supplemental funding in some instances by insurance and/or the disaster recovery program. The cost to comply with the flood mitigation design criteria could be 10 times the cost of repairing or replacing flooded electrical and mechanical equipment, in the event of a future flood event. By basic math, the Proposed Amendments are financially punitive on homeowners.

If the City is concerned about public safety and minimizing property loss, which we certainly hope is the case, then CRCAG strongly urges the City to invest in flood mitigation infrastructure. The provincial government of Alberta has indicated it is prepared to fund large scale flood mitigation projects, e.g., the Glenmore bypass tunnel. This is where the City should be focused at this time. After flood mitigation infrastructure is in place, the risk to existing communities can be re-assessed and appropriate Land Use By-laws made in that context.

Any changes to the Land Use By-laws in the Flood Hazard Area should only be made after sufficient and appropriate public consultation and feedback, and must weigh the benefits of imposing the changes against the considerable burden placed on homeowners who have already suffered substantial financial and emotional loss. We request that you do not approve the Proposed Amendments, but rather consider one of the options identified above.

Best regards,

CALGARY RIVER COMMUNITIES ACTION GROUP ASSOCIATION

Emma May, President on Behalf of the CRCAG Board.

Attachment A:

Attachment B:

September 20, 2013

06-BCB-010
Page 1 of 8

DISASTER RECOVERY PROGRAM FLOOD MITIGATION MEASURES FOR HOMES BEING REBUILT

PURPOSE

To outline the flood mitigation measures required for Disaster Recovery Program (DRP) funding for residences and small business irreparably damaged and located in the flood fringe.

DISCUSSION

There are several strategies that may be employed for flood loss prevention. The best solution to avoid flooding is to build in areas that are outside of the predicted flood hazard area. Where this strategy is not possible or practical, a strategy for "flood protection" may be employed involving the construction of levees, dikes or floodwalls. These "flood protection" measures reduce the potential for flooding but do not eliminate it, as the measures may fail due to flooding beyond predicted levels or other unanticipated causes.

Another strategy known as "high and dry" may also be considered. "High and dry" involves elevating the site to ensure the building and outdoor equipment is above the predicted flood level, which in Alberta is the 1-in-100 year flood level. One of the drawbacks of the "high and dry" strategy is that it can be expensive and not always practical to apply. Site elevation is often a better solution at the community planning stage to avoid creating issues such as surface drainage to adjacent properties at a lower level.

"Wet-flood mitigation" is a commonly used strategy based on the assumption that water will enter the building. The objective is to minimize moisture damage and allow for rapid restoration of building material and equipment. Municipal Affairs published "Disaster Recovery Program Flood Mitigation Measures," on August 15, 2013 (STANDATA Information Bulletin 06-BCB-009R1) which set out the minimum "wet-flood mitigation" measures for owners of homes and small business to be eligible for DRP funding. These measures involved minimizing moisture damage in the basement, safe means to cut and restore power, sealing penetrations and backflow prevention for plumbing.

ENHANCED FLOOD MITIGATION MEASURES FOR REBUILDS

In cases where the building is irreparably damaged in the flood fringe, this STANDATA sets out conditions for owners to be eligible for DRP funding. Owners will be required to reconstruct to these measures only to the extent reasonably possible in cases where reconstruction is in progress. These measures are consistent with the recognized disaster recovery mitigation measures under the Government of Canada's Disaster Financial Assistance Arrangements (DFFA) Guidelines and the U.S. Federal Emergency Management Agency (FEMA).

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.



Issue of this STANDATA is authorized by
the Chief Administrators in Building, Electrical and
Plumbing and Gas.



SAFETY CODES COUNCIL

Alberta Municipal Affairs – Safety Services, 16th Floor, 10155-102 Street, Edmonton, Alberta, Canada, T5J 4L4
Safety Codes Council, Suite 1000, 10665 Jasper Avenue, Edmonton, Alberta, Canada, T5J 3S9

All flood mitigation measures are to be included under one flood mitigation permit form (see attached form) issued by the DRP and verified by a safety codes officer employed by the municipality or an accredited agency. The municipality or accredited agency will include all measures under the flood mitigation permit form and issue permits and perform inspections by the appropriate safety codes officers. The flood mitigation permit form verifies compliance with flood mitigation measures when signed and dated by a safety codes officer.

Municipalities may have requirements for flood mitigation and reconstruction under local bylaws. Owners are required to be in compliance with local bylaw requirements as this STANDATA sets out conditions for DRP funding eligibility only. Questions regarding DRP funding for flood mitigation required by your municipality should be addressed to the DRP office at Alberta Emergency Management Agency at 1-866-825-4455. DRP has established policy for dealing with municipal bylaws that are above the standards (Minimum Individual Mitigation Measures and Required Mitigation Measures for Rebuilding).

PROFESSIONAL INVOLVEMENT

Where deemed eligible for DRP funding by the Alberta Emergency Management Agency, building reconstruction that falls within the scope of this STANDATA — foundation and/or superstructure reconstruction — may require related design work to be carried out by a

- 1) Professional engineer/technologist licensed to engage in the practice of engineering under the Engineering and Geoscience Professions Act, or an
- 2) Architect licensed to engage in the practice of architecture under the Architects Act,

where the designer is suitably qualified for the area of work the reconstruction project entails. Professional involvement is required for assessment of foundations and structural safety and may be required for grading and complex design issues involving structural, mechanical, electrical construction. Consult with the building safety codes officer for your municipality to determine if professional involvement is required.

DESIGN MEASURES

The following table sets out the objectives for rebuilds that homeowners and small business owners must comply with to qualify for DRP funding. Designers may consider specific variations within these design measures, as is normally the case for standard design and construction to codes and standards under the Safety Codes Act. Design and construction is subject to the review and approval of the safety codes officer in that jurisdiction.

Recommended Design Measures for Building Reconstruction		
Design Measure	Objective(s)	Design Considerations
1. Furnaces above flood level	<ul style="list-style-type: none"> To minimize flood-related damage by locating all primary and secondary heating systems above the design flood level. 	<ul style="list-style-type: none"> Furnaces need to be located above the predicted flood level and supported appropriately, whether located outside the residence, inside the building, on main floors or attic spaces (ensure manufacturer's installation instructions are addressed and environmental conditions that may relate to temperature and humidity). Boilers shall be located above the design flood level in a serviceable location that meets the requirements of the manufacturer's installation instructions and the appropriate code.
2. Hot water heaters above flood level	<ul style="list-style-type: none"> To minimize flood-related damage by locating all domestic hot water heating systems above the design flood level. 	<ul style="list-style-type: none"> Hot water tanks and instantaneous hot water heaters shall be located above the predicted flood level in a serviceable location that meets the requirements of the manufacturer's installation instructions and the appropriate code. Elevated domestic hot water tanks may require additional protection for stability and protection from back siphonage.
3. Electrical service box/panelboards above flood level	<ul style="list-style-type: none"> To minimize flood related damage and prevent electrical shock hazard. 	<ul style="list-style-type: none"> Service box located on the main floor or in garage if above the predicted flood level.
4. Isolating basement circuits	<ul style="list-style-type: none"> To allow for power to be restored to remainder of building if basement has been flooded. 	<ul style="list-style-type: none"> Basement circuits limited to basement only.
5. Service disconnect above grade	<ul style="list-style-type: none"> To allow for easy disconnect of power in an emergency. To allow ability to safely re-energize without having to enter a flooded basement. 	<ul style="list-style-type: none"> New rule in the 2012 Canadian Electrical Code allows for an outdoor service disconnect. Installing a service panel in the garage if one exists, and feeding the house as a sub-panel. Receptacles within the garage could supply power for restoration, while the house remains de-energized.
6. Installing weeping tiles on either the interior or exterior of the structure	<ul style="list-style-type: none"> To minimize flood-related damage due to the infiltration of groundwater. 	<ul style="list-style-type: none"> Ensure that backflow protection is addressed as required by the National Plumbing Code for combination systems. Contact local authorities to ensure termination of the sump of discharge meets local requirements.
7. Installing sump pumps on either the interior or exterior of the structure	<ul style="list-style-type: none"> To minimize flood-related damage due to the build-up of groundwater. 	<ul style="list-style-type: none"> Ensure sump pumps are secured in place, protected from frost if necessary, supported with backflow protection and create no additional flood risk, plus ensure discharge to the surface terminates such that drainage away from the foundation is supported.
8. Securing propane tanks	<ul style="list-style-type: none"> To prevent tank flotation by having all propane tanks properly secured, or installed above predicted flood level. 	<ul style="list-style-type: none"> Propane tanks need to be considered over the entire range of capacity from full to near empty conditions so that bracing/restraints can ensure security of the tank in any condition.

9. Using easily disposable or water-resistant building materials in basement	<ul style="list-style-type: none"> To minimize flood-related damage to basement materials. To allow for easier restoration of basement. 	<ul style="list-style-type: none"> Refer to STANDATA Building Code Bulletin 06-BCB-009R1, "Disaster Recovery Program Flood Mitigation Measures," for guidance on materials.
10. Changing to exterior basement insulation	<ul style="list-style-type: none"> To avoid need to restore or replace interior insulation in event of flooding. 	<ul style="list-style-type: none"> Compliance with the manufacturer's installation instructions to ensure proper protection and water management capability of the exterior insulation. In lieu of exterior insulation, insulate on the interior side but to 600 mm (2 ft.) below grade only.
11. Disconnecting downspouts and foundation drains from sewers	<ul style="list-style-type: none"> To minimize the load on existing sanitary systems during extreme events such as flooding. 	<ul style="list-style-type: none"> Ensure no interconnection between weeping tile, sump drains, downspouts and foundation drains to sewer. Combined sewers, require special attention to ensure overloading is minimized.
12. Installing protective plumbing such as backflow prevention valves.	<ul style="list-style-type: none"> To minimize risk of exposure to sanitary sewage and storm water through backflow events during flooding. 	<ul style="list-style-type: none"> Backflow protection shall be provided for drainage piping that serves all fixtures below the level of the adjoining street. Drainage systems shall be designed such that backflow prevention devices are sufficient for expected surge. This may require manual valves, plus normally opened, and normally closed backwater valves to ensure proper protection in the event of a flood. Storm drainage system may require additional reinforcement to ensure stability under extreme backflow conditions. Existing combined sewers need to be considered as sewers so that the storm system can be separated and discharged independently.
13. Limiting foundation openings	<ul style="list-style-type: none"> To minimize seepage or flow of floodwater into basement through openings. 	<ul style="list-style-type: none"> Foundations must be able to withstand increased hydrostatic forces as a result of less flood water ingress into basement/deeper exterior floodwater. Seal piping, wiring, conduit penetrations at basement walls. More extensive sealing of penetrations such as windows and other exterior measures may have unintended consequences (i.e. the prevention of bedroom emergency window egress) Elevation of foundation openings above design flood level, provided bedroom window egress is not undermined. Basement window well design enhancement, i.e. improve drainage to footings, extension of window well walls above grade, or above predicted flood level where possible.

14. Elevating ventilation system	<ul style="list-style-type: none"> To reduce likelihood of floodwater ingress into ventilation system. 	<ul style="list-style-type: none"> Locate ducts above the design flood level, or designed and constructed to prevent water from entering or accumulating within the ducts during floods up to the predicted flood level. If the ducts are located below the predicted flood level, the ducts shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the predicted flood level. If duct work must be installed below the design flood level, it should be minimized as much as possible (while remaining in compliance with the ventilation requirements of the ABC for living spaces). Protected controls from flood inundation. Protected exterior units from floodwater inundation, scour, and impact. Protected exterior piping and wall penetrations below the design flood level from impact and water infiltration, i.e. outside air intake, dryer vent, combustion air/exhaust venting, etc.
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General/Additional Design Considerations:

- In addition to the requirements set out in this STANDATA, all related requirements of codes and standards under the Safety Codes Act must be met.
- Appliances and equipment placed in unheated spaces or outside of the building rather than in main or upper levels of the building shall be protected for safe operation and efficiency.
- Frost protection shall be addressed on any portion of the system that is subject to freezing temperatures.
- Sump pit covers should be designed to remain closed and in place in the event of a flood (i.e. attached and hinged) and withstand bodyweight loads to limit the possibility of injury.
- Avoid storage within the furnace/service room to minimize obstructions in accessing building service controls following a flood.

[Original Signed]

Harry Li
Acting Chief Building Administrator

[Original Signed]

Sidney Manning
Chief Plumbing and Gas Administrator

[Original Signed]

Clarence Cormier
Chief Electrical Administrator

Flood Mitigation Permit Form

Disaster Recovery Program

1-866-825-4455

PLEASE PRINT

Project Location		
Project Address		Municipality
Applicant/Owner Information		
Owner Name	Contact Person	Phone
Address (if different than Project Address)		Fax
DRP Reference Number		
Permit Information		
Building	Contractor Name	Building Permit Number
		Issuer signature (or attach permit copy)
	Furnaces above flood level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Basement materials acceptable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Elevating ventilation system	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Limiting foundation openings & penetration sealing	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Basement insulation installation	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
Building Verified Compliant		SCO Signature
		Date
Electrical	Contractor Name	Electrical Permit Number
		Issuer signature (or attach permit copy)
	Electrical service box above flood level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Basement circuits isolated	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Service disconnect above flood level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)
	Panels above flood level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)

.../2

Electrical Verified Compliant		SCO Signature	Date
Plumbing	Contractor Name	Plumbing Permit Number	
		Issuer signature (or attach permit copy)	
	Hot water heaters above flood level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Back Water protection in place	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Securing propane tanks	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Disconnecting downspouts & foundation drains from sewers	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Weeping Tile	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Sump Pump	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
Plumbing Verified Compliant		SCO Signature	Date
Project Information			
Applicant's Declaration , I certify that information provided above and/or submitted with this application is true and correct.			
Please Print Name		Signature	
Address		Phone Number	Date

August 15, 2013

06-BCB-009R1
Page 1 of 6

DISASTER RECOVERY PROGRAM FLOOD MITIGATION MEASURES

PURPOSE

To outline alternative solutions for minimum flood mitigation measures when building owners apply for Disaster Recovery Program (DRP) funding to perform repairs on their property.

DISCUSSION

The scale of damage and obstacles to recovery as a result of the 2013 flooding in Southern Alberta has resulted in the decision by the Government of Alberta to appoint an advisory panel on community flood mitigation, to provide direct input on the latest flood prevention technology from around the world. In the interim period, flood mitigation measures have been established and revised through consultation with municipalities, industry and owners to provide minimum impact to the building structure and systems. The measures include locating electrical equipment above the flood level and the selection of building materials and finishes which are less likely to be damaged by flood water or easier to restore. These measures are consistent with the recognized disaster recovery mitigation measures under the Government of Canada's Disaster Financial Assistance Arrangements (DFFA) Guidelines and the U.S. Federal Emergency Management Agency (FEMA).

All flood mitigation measures are to be included under one flood mitigation permit form (see attached form) issued by the DRP and certified by a safety codes officer employed by the municipality or an accredited agency. The municipality or accredited agency will include all measures under the flood mitigation permit form and perform necessary inspections by the appropriate safety codes officers. The flood mitigation permit form certifies compliance with flood mitigation measures when signed and dated by a safety codes officer.

GENERAL REQUIREMENTS

Homeowners and small businesses located in the flood fringe must take the minimum flood mitigation measures identified below to satisfy conditions for DRP funding in the flood fringe. The following measures are referred to as "wet flood-protection", which are intended only to minimize damage and to speed restoration in the event of a flood. This is accomplished in four primary ways:

1. Basements. The objective is to minimize moisture damage or facilitate disposal of materials and restoration.

Alternative solutions require moisture resistant flooring and include but are not limited to:

- The choice to leave the basement unfinished and use minimal materials;
- The choice to use cleanable and moisture resistant materials;
- The choice to use disposable materials allowing for easy restoration.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.



Issue of this STANDATA is authorized by
the Chief Administrators in Building, Electrical and
Plumbing and Gas.



SAFETY CODES COUNCIL

Alberta Municipal Affairs – Safety Services, 16th Floor, 10155-102 Street, Edmonton, Alberta, Canada, T5J 4L4
Safety Codes Council, Suite 1000, 10665 Jasper Avenue, Edmonton, Alberta, Canada, T5J 3S9

2. Electrical equipment: The objective is to minimize the risk to life safety by providing a safe means to de-energize and re-energize the building. This allows for the de-energization of electrical equipment without having to access the basement and stand in flood water. Another consideration is being able to supply power for restoration services while being able to isolate electrical equipment damaged or made unsafe from flood waters.

Alternative solutions include but are not limited to:

- Re-locate the main electrical panel out of the basement and isolate circuits feeding electrical outlets and equipment in the basement so that power can be restored quickly in the event of a flood.
- Installing a weather proof service disconnect switch on the outside of the building between the meter socket and the existing panel in the basement. This switch would have provisions for disconnection of the existing panel.
- Installing a service panel in the garage if one exists, and feeding the house as a sub-panel. Receptacles within the garage could supply power for restoration, while the house remains de-energized.

The Canadian Electrical Code rules regarding location and clearances for electrical panels would still apply in all cases. Other installation methods may be acceptable. Contact the Authority Having Jurisdiction (municipality or accredited agency) in your area for clarification.

3. Penetrations: The objective is to minimize water seepage into the building.

Alternative solutions include but are not limited to:

- Seal piping, wiring, conduit penetrations at basement walls.
- More extensive sealing of penetrations such as windows and other exterior measures may have unintended consequences (i.e. the prevention of emergency window egress) and therefore should be undertaken on the advice of a professional.

4. The objective is to protect plumbing fixtures/equipment located in basements from backflow from the public sewers.

- Solution: Backflow prevention devices are required under the National Plumbing Code as adopted by regulation in Alberta. All backflow prevention devices shall be installed in accordance with manufacturer's recommendations and the Plumbing Regulations.
- Plumbing fixtures/equipment located in basements shall be protected from backflow from the public sewers. All backflow prevention devices shall be installed in accordance with manufacturer's recommendations and the Plumbing Regulations.

Questions regarding this bulletin may be directed to the Safety Services Branch.

Toll free telephone number: 1-866-421-6929.

[Original Signed]

Harry Li
Acting Chief Building Administrator

[Original Signed]

Sidney Manning
Chief Plumbing and Gas Administrator

[Original Signed]

Dan Niven
Acting Chief Electrical Administrator

APPENDIX NOTES

Acceptable materials for flood damage reduction:

Proper selection of building materials and finishes which are less likely to be damaged by flood water will reduce the extent of damage and amount of time it takes to return the facility to operation. For example, the DFAA relies on "specific repair projects to reduce vulnerability to future emergencies". For more information on provincial mitigation solutions recognized by DFAA and federal funding support to provinces and territories, please link to <http://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/gdlns-dsstr-ssstnc/index-eng.aspx#s6>

Similar measures are recognized by FEMA for structural materials and finish materials commonly used in the construction of floors, walls, and ceilings, with a level of acceptability given for each material. For example, "Flood damage-resistant material" is defined as "any building product [material, component or system] capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage." The term "prolonged contact" means at least 72 hours, and the term "significant damage" means any damage requiring more than cosmetic repair.

Following is a link to this document:

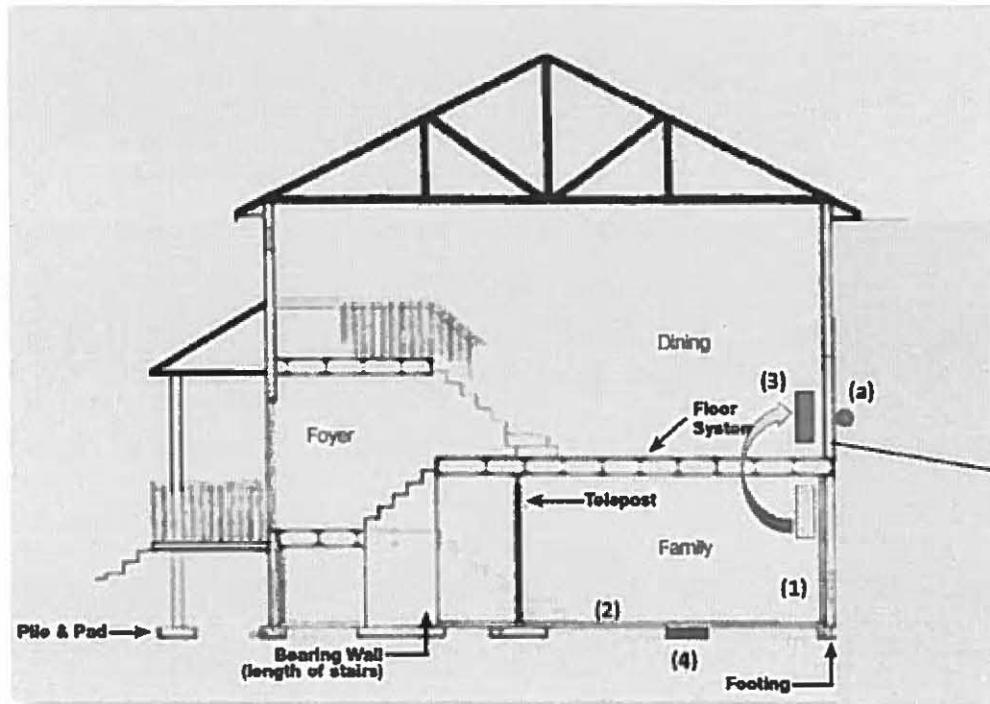
https://s3-us-gov-west-1.amazonaws.com/dam-production/uploads/20130726-1502-20490-4764/fema_tb_2_rev1.pdf

Please note that other applicable requirements of the Alberta Building Code such as flame spread rating, smoke development classification, material standards, etc., must still be complied with.

The following are examples of flood damage-resistant building materials acceptable for reconstruction work under the DRP program. This is not an exhaustive list and in no way precludes the use of other products. Materials and products that are not listed may still be used if accepted by the local building official (Building SCO). In such cases, manufacturers' literature (i.e., specifications, materials, safety data sheets, test reports etc.) may be used to determine if the product meets flood damage-resistance requirements. Acceptance should be based on sufficient evidence provided by the applicant that the materials proposed to be used will resist flood damage without requiring more than cosmetic repair and cleaning.

1. Construction Materials for Walls and Ceilings
 - a. brick, metal, concrete, concrete block, porcelain, slate, glass block, stone, and ceramic and clay tile
 - b. cement board, reinforced concrete
 - c. polyester epoxy paint
 - d. pressure treated lumber or steel studs
 - e. pressure treated and marine grade plywood
 - f. foam and closed-cell insulation
 - g. water resistant non-paper faced gypsum exterior sheathing
 - h. wall panel, steel
2. Materials for Flooring
 - a. concrete, concrete tile and precast concrete
 - b. latex or bituminous flooring, ceramic, clay terrazzo
 - c. vinyl and rubber sheets and tiles
 - d. pressure treated wood
3. Other
 - a. metal doors
 - b. fibreglass or vinyl doors

Flood Mitigation Sketches



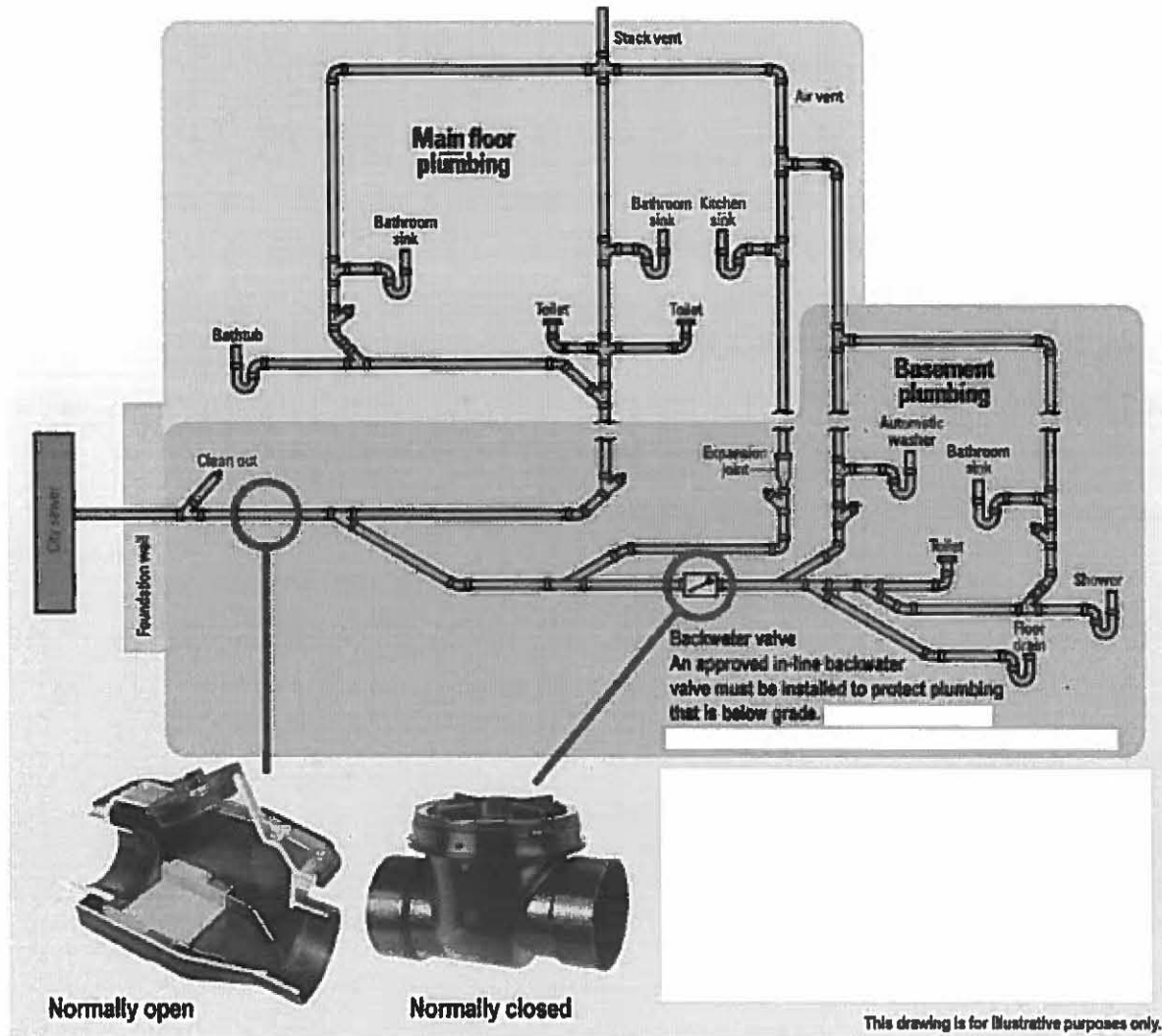
Alternative solution 3- (a)

- (1)- (2) Walls and Floors: Use cleanable moisture resistance material or materials easy to dispose and restore.
- (3) Relocate Electric Panel or use alternative solution (a): mount a service disconnect SWITCH on the outside of the home or garage.
- (4) Install a backflow prevention device.

Service Disconnect SWITCH, located outside the house or garage.



Typical household backwater valve installations



Flood Mitigation Permit Form

Disaster Recovery Program

1-866-825-4455

PLEASE PRINT

Project Location			
Project Address			Municipality
Applicant/Owner Information			
Owner Name		Contact Person	Phone
Address (if different than Project Address)			Fax
DRP Reference Number			
Permit Information			
Building	Contractor Name	Building Permit Number	
		Issuer signature (or attach permit copy)	
	Basement Penetrations Sealed	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Basement materials Acceptable	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
Building Certified Compliant		SCO Signature	Date
Electrical	Contractor Name	Electrical Permit Number	
		Issuer signature (or attach permit copy)	
	Disconnect or panel above grade	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
	Basement circuits isolated	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
Electrical Certified Compliant		SCO Signature	Date
Plumbing	Contractor Name	Plumbing Permit Number	
		Issuer signature (or attach permit copy)	
	Back Water protection in place	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA (if NA explain)	
Plumbing Certified Compliant		SCO Signature	Date
Project Information			
Applicant's Declaration , I certify that information provided above and/or submitted with this application is true and correct.			
Please Print Name		Signature	
Address		Phone Number	Date