Building Tomorrow's Heritage Neighbourhoods TODAY

Alberta Masonry Council

Planning Policies for Attractive and Enduring Neighbourhoods

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Executive Summary

The nature of community construction in Alberta has changed over the years. Many of the earliest buildings in Alberta are heritage structures built with brick and stone. These can still be seen in many downtowns. Stone is still produced in Alberta today, while the legacy of the province's brickmaking industry can be seen in surviving facilities in Medicine Hat and Redcliff.

The boom-and-bust nature of Alberta's economy however led to a transition in building quality. Today, many homes, neighbourhoods and businesses have been built with cheaper building materials in order to meet spikes in demand for housing.

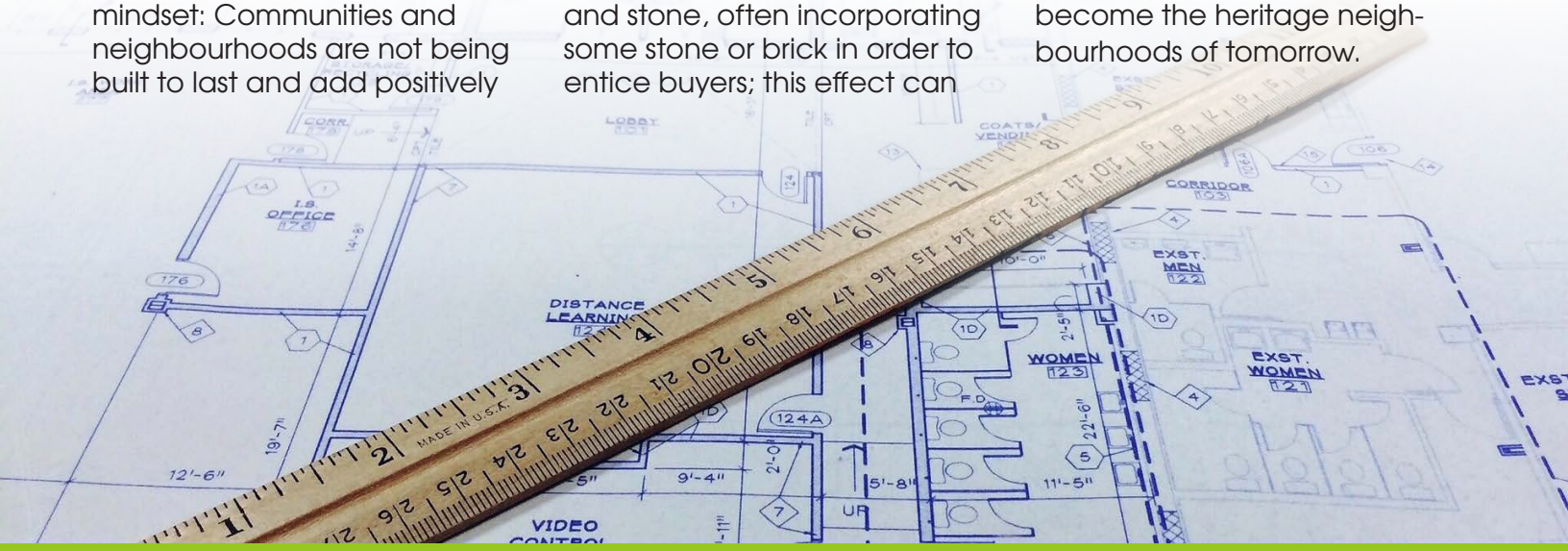
Even when installed entirely to spec, however, less durable building materials have consequences. These materials begin deteriorating within 15 to 20 years even under normal conditions and ideal installation. The result is that Alberta's built environment is increasingly characterized by a short-term mindset: Communities and neighbourhoods are not being built to last and add positively to tomorrow's building heritage. Governments and builders have tools they can use to help reverse these trends.

As Alberta's government notes in its Asset Management handbook, considering up-front costs alone is not enough. It is important to take a lifecycle approach to building, including using exterior building materials which will last for decades and require little maintenance. These materials, namely brick, stone and block also have advantages in winterizing buildings, storing heat energy and providing energy savings of as much as 13% while resisting impacts from inclement weather.

Policymakers have tools on hand to urge builders to build with more durable, long-lasting materials including brick and stone. Already, programs such as Area Structure Plans and Urban Design Guidelines are being used in some municipalities to exercise input into matters of exterior design. Many builders, too, know the value in brick and stone, often incorporating some stone or brick in order to entice buyers; this effect can be improved through measures such as building front facades of homes in full brick and stone cladding. As well, as densities increase, builders can deliver a better quality of life and a more memorable, heritage-styled built environment by building with brick and stone. With more durable building materials used on the front facades of buildings, the community character will be enduring and help to maintain property values.

Brick and stone are durable, appealing, easy to maintain and help buildings hold their value over time. They attenuate sound, won't catch fire and bring a sense of prestige and heritage value. Many homebuyers see brick and stone cladding as a sign that a home has more value than other homes.

This document makes specific policy recommendations which builders and policymakers can use to help build stronger, more attractive neighbourhoods across Alberta. The neighbourhoods of today can survive to become the heritage neighbourhoods of tomorrow.



Doing It Right, Now

Alberta's built environment – the materials and character of homes, businesses and public buildings – has been shaped by economic forces and cycles of rising and falling demand. Through encouraging policy and sound business thinking, planners, policymakers and builders can help to improve that character to meet today's challenges.

There is a significant divide between the character of Alberta's oldest buildings and much of Alberta's current housing stock.

Many towns and cities across the province were originally built with masonry. Clay brick, natural stone, sandstone and other materials are in evidence in communities as large as Calgary and Edmonton and as small as Lacombe and Brooks. Most of these buildings are still standing, forming heritage anchors which give character to Alberta's traditional downtowns.

By contrast, the demands of Alberta's boom-and-bust economy created a demand for instant housing. As a result, many neighbourhoods and businesses in Alberta have been constructed largely out of cheaper and less durable materials in the interest of speed with little regard for the future. Even when installed properly, these cheaper materials show significant wear in 15 to 25 years, requiring costly replacement, giving buildings and neighbourhoods a dilapidated look until the maintenance is undertaken. Too many of these buildings form too much of Alberta's recent architectural character, lacking long-term heritage value, permanence and the resilient property values of older, traditional buildings and neighbourhoods.

Much of Alberta's growth has taken place over the last 50 years. As planners, builders and homeowners move to consider the future of former boom neighbourhoods across the province, it is vital to ensure that when these neighbourhoods are re-developed, they are done so with an eye towards more permanence. While the first wave may have been put up to meet rapid demand and the expense of quality, that character does not have to define an area forever.

Municipalities have the opportunity to reverse this trend by insisting on more enduring buildings and neighbourhoods that enhance and build on Alberta's architectural heritage, to build the heritage neighbourhoods of tomorrow, today.

Alberta's Brick & Stone Tradition

Alberta has a deep tradition of building with brick and stone.

In downtowns across the Alberta and in towns and cities along the old CP Rail line, many classic heritage buildings are made with brick, stone and block. Storefronts, high-rise towers, mid-rises and even many older homes are built out of these traditional, natural materials.

Many of Alberta's oldest surviving heritage buildings are made of stone and brick. All it takes is a look through the Alberta Register of Historic Places to see how many buildings critical to the history of Alberta's communities were made with these materials. Many of these buildings survive into the present day and continue to act as local landmarks, defining the character of their communities. These buildings have stood the test of time and have gone on to become important features in municipalities of all sizes.

In the 1970s, Alberta Research conducted an extensive study of clay and shale deposits in Alberta and found the province to be abundant in the grade of clay useful for making brick. Much of Alberta's high-quality brick clay is found in southeastern Alberta, on the flanks of the Cypress Hills, drawn from what is called the Whitemud Formation – "the most important source of clays in Western Canada." (1)

"In the early days of the ceramic industry in Alberta, clay products plants were established at numerous scattered localities throughout the province," including brick factories. Many of these small brick plants serviced their local market. Over the years, brickmaking in Alberta became concentrated in Medicine Hat – Redcliff, with some in Edmonton. The former I-XL brick plant in Medicine Hat may still be visited today, and enormous deposits of Whitemud clay still remain.

Today, Alberta produces other types of masonry. Stone products like Rundle Rock are quarried at the Thunderstone and Kamenka quarries near Canmore, along with other types of stone throughout the province. In fact, stone has been produced for building purposes in Alberta since 1890, when a

(1) Hamilton, W.N. and Babet, Pauline. *Alberta Clays and Shales: Summary of Ceramic Properties.* Alberta Research. March 1975.

fire burned down many of the wooden buildings on Calgary's main street; the citizens rebuilt with stone, excavating Paskapoo sandstone from outcrops along the Bow and Elbow Rivers. This type of stone can be seen on buildings such as the provincial legislative building. Many other buildings in Alberta have since been built with local stone. As a 2010 report by the Energy Resources Conservation Board of the Alberta Geological Survey notes, "These buildings have created a sense of stability and community for Albertans." (2)

Alberta masonry producers also manufacture high-quality architectural block. Firms such as Expocrete and I-XL have manufacturing plants throughout the province, producing a wide variety of colours and styles of architectural concrete block for building exteriors as well as utility block well suited for interior uses such as fireproof retaining walls, sound attenuation and durability.

The legacy of Alberta's brick and stone history can be seen in countless brick and stone downtowns across the province. They encompass cities like Medicine Hat, Lethbridge and Red Deer as well as communities like, Banff, Canmore, Lacombe, Nanton, Fort McLeod and Wetaskiwin. Much of Alberta's urban history, in communities large and small, is built on a brick and stone foundation.

Brick and stone are part of Alberta's heritage. They should also be a bigger part of Alberta's future...

(2) Crocq, C.S. *Building Stone in Alberta*. Energy Resources Conservation Board Alberta Geological Survey. January 2010.

Booms, Busts and Building Materials

In 1951, Alberta was home to less than one million people. Today it has more than quadrupled in population. (3) Much of Alberta's building stock is therefore quite recent, and it has been erected hastily and with quick but sub-par materials based on the way Alberta's economy generates demand for new housing stock.

Because Alberta's economy moves in boom-and-bust cycles, so too does Alberta's housing market. When Alberta booms, more people look for housing. The boom cycle creates an immediate demand for new housing, which must be satisfied within a construction season limited by the province's long winters, with as many available workers as possible – even those best suited to applying materials which require little training to install. As a result, many new neighbourhoods in Alberta are built with houses clad in stucco or vinyl siding: Cheaper materials which can be erected quickly to meet the demand of the boom-and-bust cycle.

However, these lower-quality materials do not make for enduring neighbourhoods. Within 15 to 20 years, even well-installed stucco or siding will begin to take on a dilapidated appearance. Less durable materials may require numerous replacements during their lifetime. The cost of the boom-and-bust cycle is that when homes are built fast and cheap, they begin to show their age faster, and as they do, they lose their value. The trade-off has been in quality: Homes in Alberta are typically of low-durability materials with little heritage value.

Many communities in Alberta, particularly along the CP Rail line, share a similar structure in terms of materiality. These communities may have well-developed brick and stone downtowns, and heritage homes may also be built with brick. However, outside the downtown, there is a rapid transition to newer homes clad in cheaper materials.

The trade-off shows itself in how buildings in Alberta have aged. Many heritage downtowns in Alberta still exist in a beautiful, iconic state. These brick and stone buildings remain landmarks in communities of all sizes. Meanwhile, recent developments using materials such as stucco are already beginning to show signs of decay and dilapidation, even just 20 years later. Ironically, most of Alberta's newer building stock stands to have a shorter lifespan than its old building stock.

> "The bitterness of poor quality remains long after the sweetness of low price is forgotten."
>
> *- Benjamin Franklin*

(3) Government of Alberta Economic Dashboard.

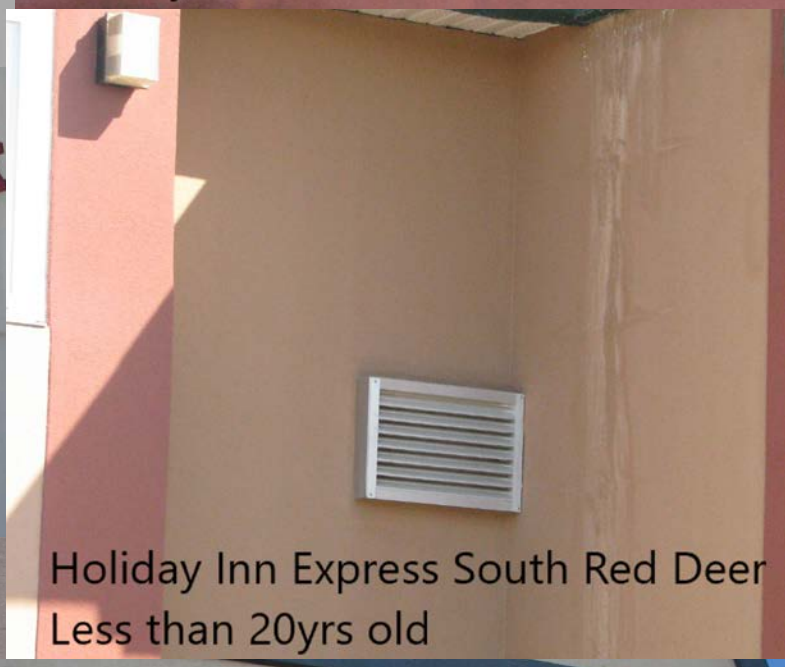
Working As Intended

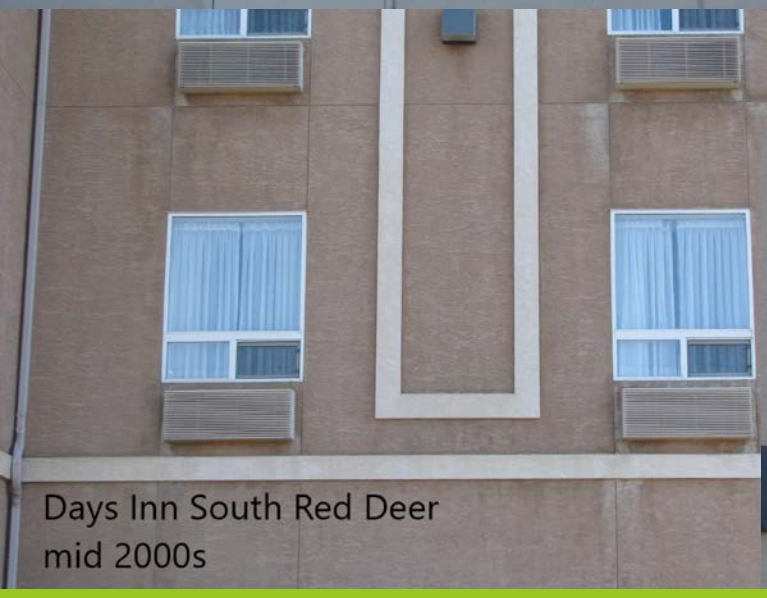
Some building materials, such as stucco, can become dilapidated within 20 years even when installed as intended. These photos taken from around Alberta illustrate what happens to properly-installed stucco as it ages.

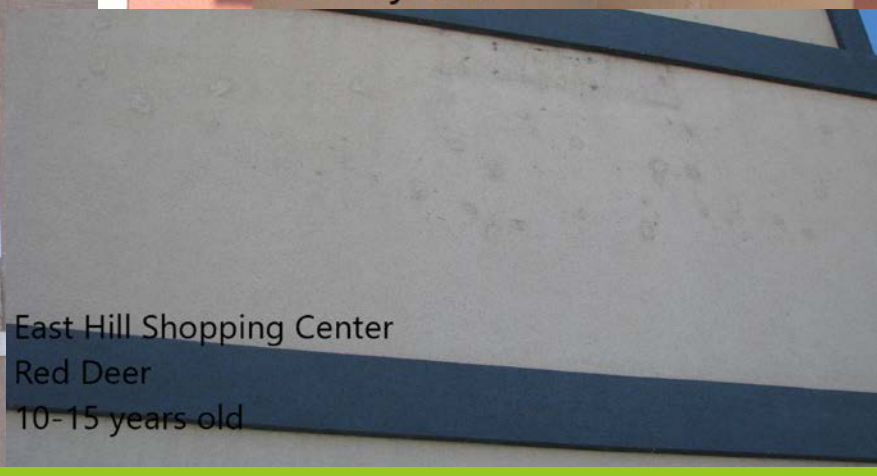

Sandman Hotel Red Deer
18yrs old


67th Street Center Red Deer
10-15 years old


67th Street Center Red Deer
10-15 years old


Holiday Inn Express South Red Deer
Less than 20yrs old


Days Inn South Red Deer
mid 2000s


East Hill Shopping Center
Red Deer
10-15 years old

...Build Tomorrow's Heritage, Today

As municipalities expand outwards, it is important to revisit aging boom neighbourhoods and review the toll that time and weather has played on the structures and community character. The landscaping will have matured and the trees have grown in, but the houses and structures have deteriorated and look tired.

Municipalities have the power to implement policies that speak to exterior building materials. These policies can be turned towards redevelopment in order to help municipalities extend the character of the downtown out into the rest of the community, creating a clean transition from Alberta's classic masonry downtowns to more outlying areas. Policies can be put in place to emphasize specific building materials for infill developments, ensuring that as these neighbourhoods are revisited, **dilapidated neighbourhoods can be enhanced with the enduring buildings that will stand the test of time.**

Perceived short-term compromises for speed sacrificing quality and durability should not define a community forever. **Alberta municipalities have the power to redevelop aging and deteriorating neighbourhoods to a more resilient and enduring standard.**

Brick and stone are long-lasting, durable and carry a significant sense of place. Building with brick and stone results in buildings that are going to maintain their aesthetic in 100 years, in contrast with less durable materials. **Many of the downtown core buildings in Alberta towns and cities are built with brick and stone and have survived to become heritage landmarks. The front facades of neighbourhoods should be treated with the same respect.**

Public Asset Management

Alberta's Ministry of Municipal Affairs has issued a handbook on asset management for municipalities, entitled Building Community Resilience Through Asset Management. This handbook notes that total operation and maintenance costs accrued over the life of a piece of infrastructure may often significantly exceed its up-front capital cost. This is not only true of roads and bridges, but also of buildings.

As stewards of infrastructure, services and tax dollars, it is incumbent on municipalities to plan in such a way as to reduce these costs. As the handbook notes:

> *Lifecycle costs should be considered before an asset is even designed. Ways of minimizing lifecycle costs of new assets are:*
> - *Choosing energy efficient designs and equipment.*
> - *Selecting materials/ designs based on total lifecycle cost, rather than up front capital cost.*
> - *Designing new developments to maximize efficient use of infrastructure such as roadways, storm and sanitary sewer, and water systems.*

Considering simply the up-front cost of infrastructure is not enough. The Handbook notes:

> *Generally speaking, the closer you are to spending the money, the more accurate you need to be with your cost estimates. For the purposes of understanding potential costs of replacing assets over the long term, or identifying potential financial risks, it is impossible to be completely accurate and an educated estimate is good enough. For capital projects to be undertaken within the next few years, you should work to have a more accurate cost estimate of both the up-front capital costs, and the costs of ongoing operations and maintenance.Generally speaking, the closer you are to spending the money, the more accurate you need to be with your cost estimates. For the purposes of understanding potential costs of replacing assets over the long term, or identifying potential financial risks, it is impossible to be completely accurate and an educated estimate is good enough. For capital projects to be undertaken within the next few years, you should work to have a more accurate cost estimate of both the up-front capital costs, and the costs of ongoing operations and maintenance.*

When assessing the condition and replacement costs of infrastructure, it is vital to consider each asset's cost over time –

how much maintenance will go into maintaining it, for instance. **For buildings, this makes exterior building materials an inescapable part of the equation.** Some building materials are of low quality and require regular maintenance and replacement, driving up costs over time. Other building materials are resilient and with high endurance, trading off a higher up-front cost for significantly lower maintenance costs over time.

Durable exterior cladding can add to the lifespan of a structure. A well-designed building can last a century or longer, but not if it is clad in materials which will decay and require replacement within a quarter of that time. It makes no financial sense to develop enduring buildings and cover them in ephemeral building materials which will need to be replaced multiple times every hundred years.

Brick and stone are among the most physically resilient building materials available. Many of Alberta's oldest surviving heritage buildings are built with brick and stone and continue to stand the test of time to this day – a contrast to buildings built with other materials, such as stucco, which can begin to show signs of decay within just 15 to 20 years. **Brick and stone will also resist severe weather events.**

A brick or stone building can not only survive for 100 years or longer, it can also become an excellent candidate for adaptive reuse, enhancing and building community character over time – allowing for the asset to once again be put to work for the taxpayer, without the expense of constructing an entirely new asset.

Strong materials make for strong infrastructure assets. Building with an eye towards physical longevity and resilience can save municipalities and taxpayers millions of dollars over the long-term.

Winterizing Communities

In any community which experiences long cold seasons, it is vital to ensure that new buildings are able to withstand the rigors of a long winter. Some municipalities, such as Edmonton, are leading the way on this with Winter Design Guidelines. This approach can be adopted by other communities across Alberta.

All building materials are susceptible to the freeze-thaw cycle, including many popular types of vinyl siding, which may become brittle and experience cracking in the winter and become more pliable and prone to impact damage in the summer. But consideration of materials goes beyond freezing and thawing. Builders must also consider how buildings retain heat during a long, cold winter, and how much energy is required to heat a building.

Building healthy, sustainable communities and winter-ready structures means using building materials that are resilient and can withstand the effects of a long winter, including heavy snowfall, high winds, extreme cold, ice, and other severe weather events. It also means using materials which retain heat during the cold season.

Brick, stone and block have strong properties of thermal storage (also known as thermal mass), giving them the ability to moderate a building's temperature. These materials store heat energy and slowly release it, retaining heat during cool periods and cool during warmer periods. Brick, block and stone, in fact, are proven to provide energy savings of as much as 13% by regulating temperature fluctuations and keeping homes warmer in the winter, as well as cooler in the summer.

Interior use of brick and stone can also provide radiant heat, and they make excellent flooring or exterior paving materials.

Similarly, because of the durability of brick, stone and block, these resilient materials are better able than other materials to withstand extreme weather impacts from high winds, hail, ice storms and snow. They will not suffer dents or cracks when struck by hail, and high wind cannot strip it off the side of a house.

Combined with other materials and design techniques, the use of internal and external brick, stone and block can be a strong tool used by both planners and developers to winterize a structure and help its inhabitants remain comfortable and secure even during a long, harsh winter.

Brick, Stone and Public Policy

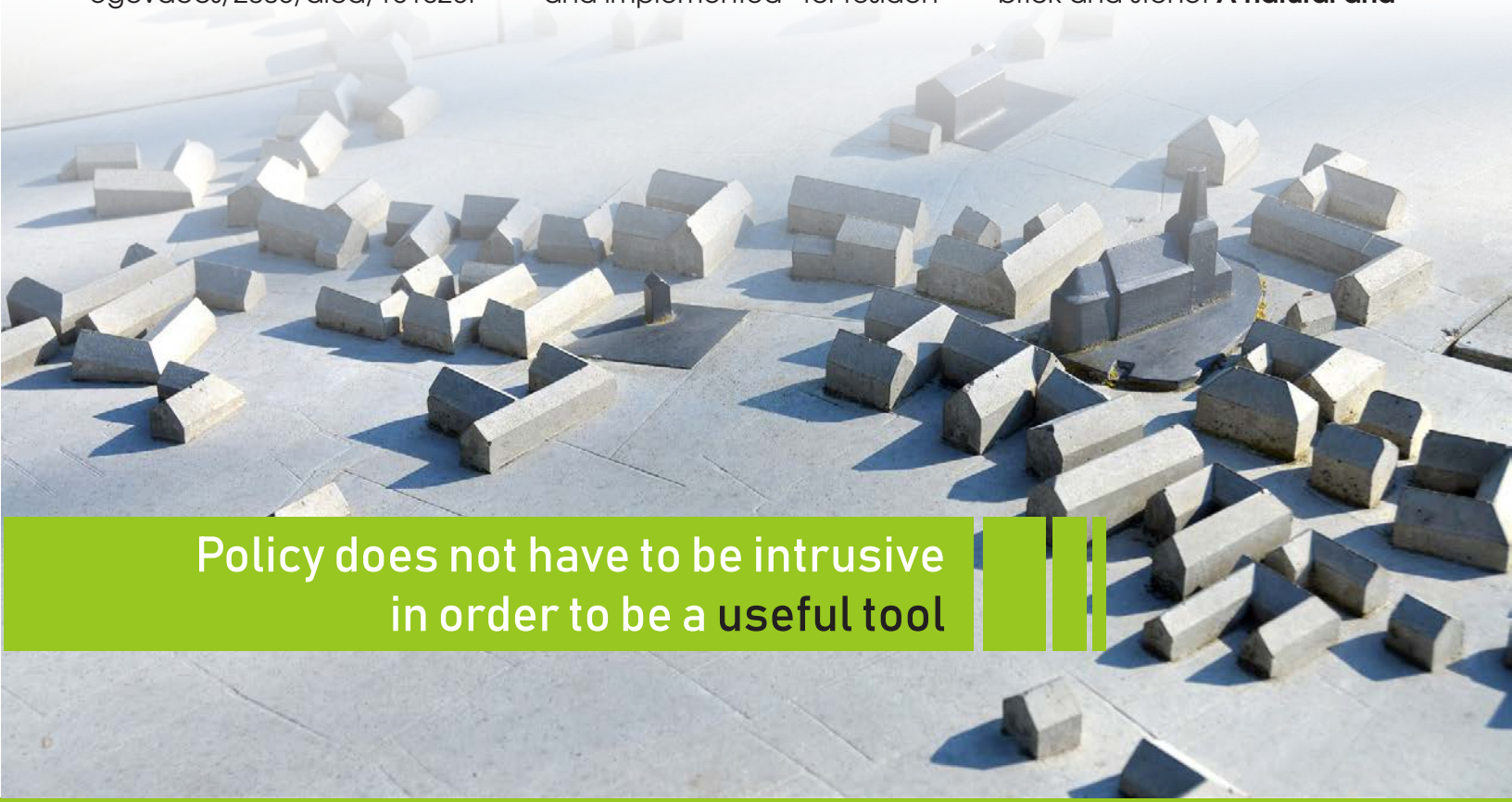
Municipalities can play a part in preserving their communities' masonry heritage through judicious public policy. By taking a planning approach to new development in the right areas, municipalities have the power to encourage more use of brick and stone in special areas of the community.

The provincial government has sought to help municipalities preserve this heritage through initiatives such as the Alberta Main Street Program, which provided resources to help towns preserve their historic downtowns. (Source: Alberta Main Street Program. Alberta Heritage Resource Management Branch. http://www.assembly.ab.ca/lao/library/egovdocs/2005/alcd/151625.pdf) However, more can be done, through strong policies, to maintain and enhance Alberta's brick and stone tradition while supporting local jobs in our communities.

Some municipalities in Alberta have used tools such as Area Structure Plans to incorporate architectural guidelines, which can speak to the exterior building materials municipalities would prefer. Such plans may also be used to compel the developer to develop Architectural Controls, as Medicine Hat did with the Hamptons Area Specific Plan in 2005 by noting that such controls "addressing issues such as building appearance, exterior materials, lighting and landscaping will be prepared and implemented" for residential development.

One use of these is to e**ncourage a certain percentage of the building envelope to be built with brick and stone.** For homes, this may take the form of brick or stone podiums and pillars. Apartments and commercial buildings, meanwhile, will often have a requirement for significantly more brick.

Policies such as this, along with heritage preservation policies, can be targeted to specific areas of a municipality. For instance, a municipality along the CP Rail line may wish to ensure that districts in and around the downtown reflect the architectural character of the core. Many old Alberta downtowns include buildings built with local brick and stone. **A natural and**



Policy does not have to be intrusive in order to be a useful tool

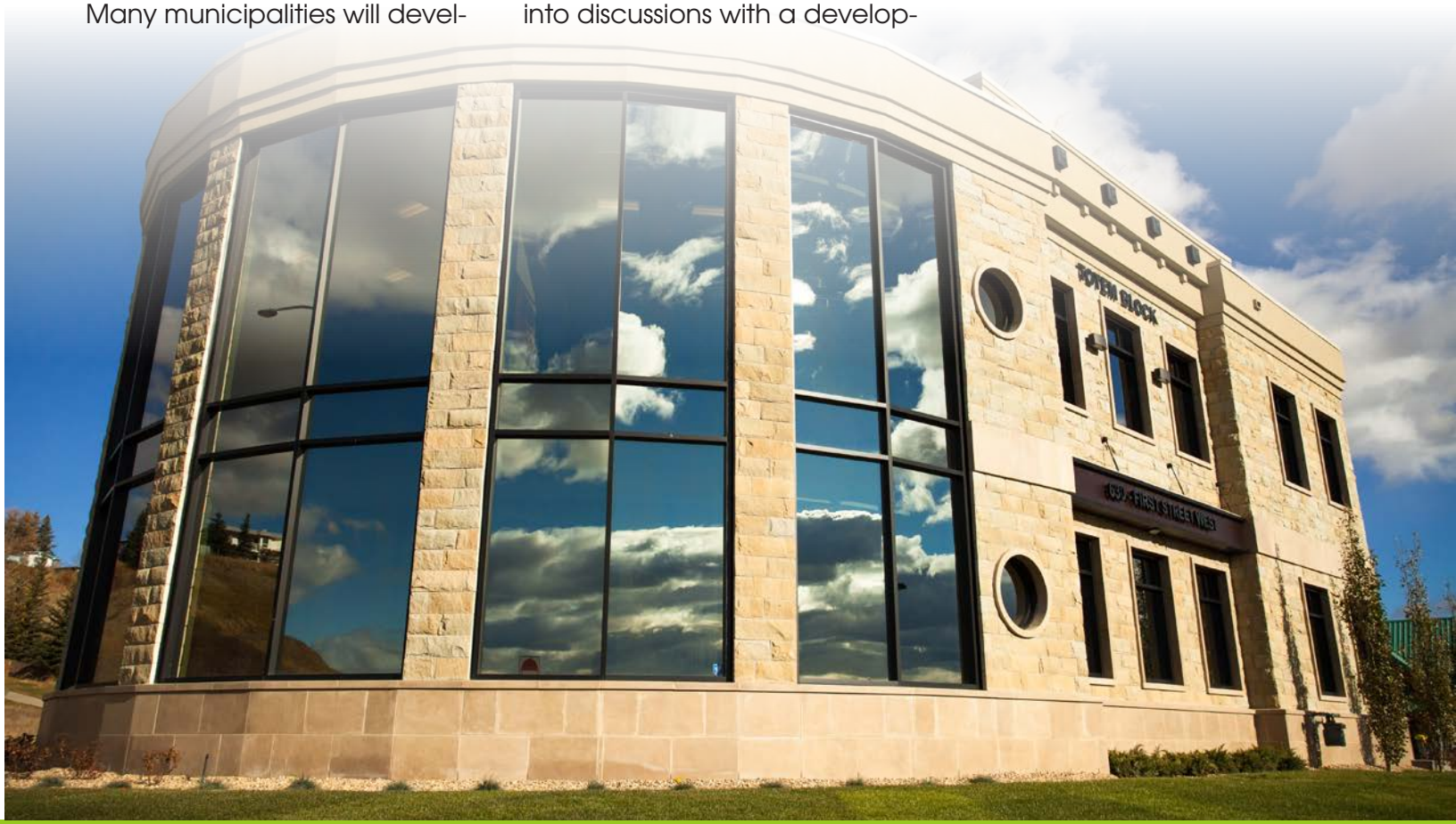
desirable next step is to build brick out into the surrounding neighbourhoods through infill and intensification, helping to better match up to the historic character of the community.

Strong policies, through Area Structure Plans, may also be applied to city centres themselves, along with heritage policies intended to maintain the traditional character of the downtown. As redevelopment and infill occurs in these areas, new developments should respect the character of the existing built environment. If a downtown is primarily brick, it should maintain a brick character at street level.

Many municipalities will develop manuals of Urban Design Guidelines (similar to Calgary's Centre City Urban Design Guidelines) to steer developers towards a built form the municipality deems appropriate and consistent with the local context. These guidelines can include guidance as to appropriate exterior cladding materials and façade treatments along with other matters, such as massing. They can be used to guide the use of certain materials over others in the process, helping to deliver a clear vision of what the municipality considers to be acceptable.

All of these policies help to reinforce a vision of what a community wants. When going into discussions with a developer or builder, having a cohesive architectural vision gives city and town planners a tool to ensure that development meets a standard of quality to ensure that the building stock will last long into the future.

Municipal planners have the power to urge developers towards a desired type of built form, including setting standards calling for the use of brick, block and stone in historic downtowns, midtowns and suburbs across Alberta. **By setting higher standards today, the buildings that are new in this generation can survive to become tomorrow's heritage communities we love and cherish.**



Low Density Residential

The front façade of a home is the most important in many respects. It is this façade which faces the neighbourhood and integrates with other home facades to gives the area its overall architectural character. As such, there are advantages to building the front façade of a home with high-quality materials, even if side-facing elevations utilize cheaper materials. Additionally, the sides of the homes remain better protected from hail and extreme weather by the sheltering effect from adjacent homes - especially with the trend of municipalities and developers to utilize the minimum 1.22 m (4 foot) set back from the side property line.

By choosing high-quality materials for the front of a home (and back of the home in neighborhoods where the homes do not have an alley to divide them, such as when homes share a backyard fence), builders and planners can ensure neighbourhoods come together to convey a sense of permanence and value. Traditional, long-lasting materials carry a greater sense of place than other, less durable materials. Utilizing these materials for front-facing facades gives them their maximum weight within the neighbourhood.

Moreover, high-durability materials such as brick and stone are much less likely than other materials to require replacement. While vinyl siding and stucco may dilapidate visibly within 15 to 25 years or suffer damage from extreme weather, brick and stone are resilient and capable of withstanding extreme heat, cold and precipitation.

This resilience has a number of advantages. It ensures that one façade of the home will not require regular maintenance over time, reducing the amount the homeowner will have to pay. But it also ensures that a home has its most important façade forward when it comes to retaining its value. The façade that faces the public should be the façade which best holds its value and resists damage and dilapidation. This improves curb appeal, property value and increases tax revenue for the municipality.

Incorporating percentages of brick and stone into a home design is not new in Alberta. A design approach sometimes taken by Alberta municipalities is to specify that a certain percentage of the building exterior – perhaps 20% - must be masonry. Brick and stone are often incorporated as an accent into low-rise dwellings by builders, who know that it will serve as a selling point with buyers in a competitive marketplace. These factors can work together to enhance low-rise housing in new neighbourhoods in communities of all sizes.

If any percentage of a low-rise home in Alberta should be brick, it should be the front façade. Building front-facing brick and stone homes can ensure that the new waves of neighbourhoods being erected across the province will have a distinctive, permanent feel and hold their value over time.

Mid-Rises and Above

There is a tradition in Alberta of building higher-density residential, commercial and mixed-use buildings with brick, block and stone. Apartments, businesses and similar structures made of masonry can be found in most cities in the province.

Moreover, the demands of living at higher densities tend to place demands on builders which naturally favour resilient, durable building materials with certain properties. As densities increase, so too does the need to ensure that residents are safe, comfortable and enjoy a high quality of life, while ensuring that the built environment retains a high architectural quality.

At higher densities, demands tend towards resident comfort and safety. Buildings must be built in such a way that multi-unit dwellings are resistant to factors such as and isolation of sound and the spread of fire. They must be soundproof, not only internally to prevent people in adjacent rooms from overhearing each other, but externally, to prevent traffic noise from infiltrating living quarters, especially in the evening. They must also be built of materials which will hold their value over time and require little maintenance, particularly being able to resist inclement weather.

When building mid-rises, high-rises and mixed-use buildings, a key factor in choosing materials should be lifecycle cost assessment. These buildings are generally intended for extended use by multiple tenants rather than one property owner, and low-maintenance materials therefore can provide cost savings. When designing a building of this sort, it should last a minimum of 50 to 75 years, despite reserve fund studies utilizing a 30 year design life. It makes little sense to build with building elements which will only last 20 years – this makes expensive replacements inevitable. By choosing quality up front, mid-rise buildings can sustain themselves for longer and reduce the cost to strata owners .

Taller buildings are landmarks in and of themselves. They stand so prominently as part of the skyline that most facades of these buildings tend to be visible. These building elements form a semi-public realm – part of a private building, but an important part of the public landscape. At high densities, the built environment becomes the landscape in its own right, and it is important to ensure the best quality of urban landscape possible. This creates demand for an increased quality of architectural treatment for all facings of a taller building. New York and Chicago are excellent examples of high rise architecture that utilize brick and stone architecture at the highly-visible peak of the tower.

Brick, stone and block masonry satisfy these conditions. These materials have the sound attenuation, fireproofing and durability properties needed for building at density, and the character properties and life-cycle cost advantages to both build community look and feel and provide and sustain the aesthetic and building performance over time.

Why Brick and Stone?

Wider use of brick and stone in development projects not only meets the needs of municipalities for resilient, long-lasting structures, it meets aesthetic and design needs. Masonry products have a number of positive attributes, including:

- Ruggedness and resilience against extreme weather events;
- Widespread aesthetic appeal and versatility;
- Helps homes and buildings hold their value over time;
- Non-combustible, improving fire safety (especially for higher densities);
- Sound attenuation, reducing noise for the outside in and from the inside out;
- Minimal maintenance requirements, helping to maintain property values and therefore tax assessment;
- The endurance and long life span of the product, building structures which last and stand the test of time;
- Sense of prestige and permanence.

For many homebuyers, brick and stone are a sign that a home has more value than other homes. Even adding a percentage of brick and stone to the building's envelope, particularly the front façade, can increase its value. In the custom home market specifically, brick and stone are widely sought after. However, they can be accessible to any homebuyer.

Model Policies

Alberta Masonry Council

For low-rise dwellings, single-family homes, duplexes and townhouses:

- Design front facades using high-quality natural materials which are durable and respect the historic character of the community.
- The front façade of the home should be clad primarily in full brick or stone. Use other building materials based on architectural merit in combination with the primary materials. Masonry should equate to approximately 20% of the exterior cladding of the building.
- For corner lots and other highly-visible facades, enhanced architectural treatments shall be required. Use full brick and stone as the primary building materials, with other materials used in combination with the primary materials.

For mid-rise, mixed-use and commercial:

- Use high-quality materials of a long-lasting nature, and employ high-quality contemporary design, so that one day new development may become heritage itself. Materials which are historically authentic and permanent include brick, stone and architectural block. Use other materials, such as glazing, metal siding and stucco, as secondary materials in combination with heritage materials.
- Use high-quality and durable building materials that will withstand the freeze-thaw cycle and conserve energy. Consider incorporating dense materials with strong thermal mass properties, such as brick and stone, to absorb and retain heat in the winter.
- Design visible side or rear building facades with visually attractive materials or images of a similar material character or quality to the front façade.
- Choose materials with strong sound attenuation properties suitable for higher densities.
- **Incorporate lifecycle cost assessments for all elements of new buildings, including exterior building materials and structural materials.**