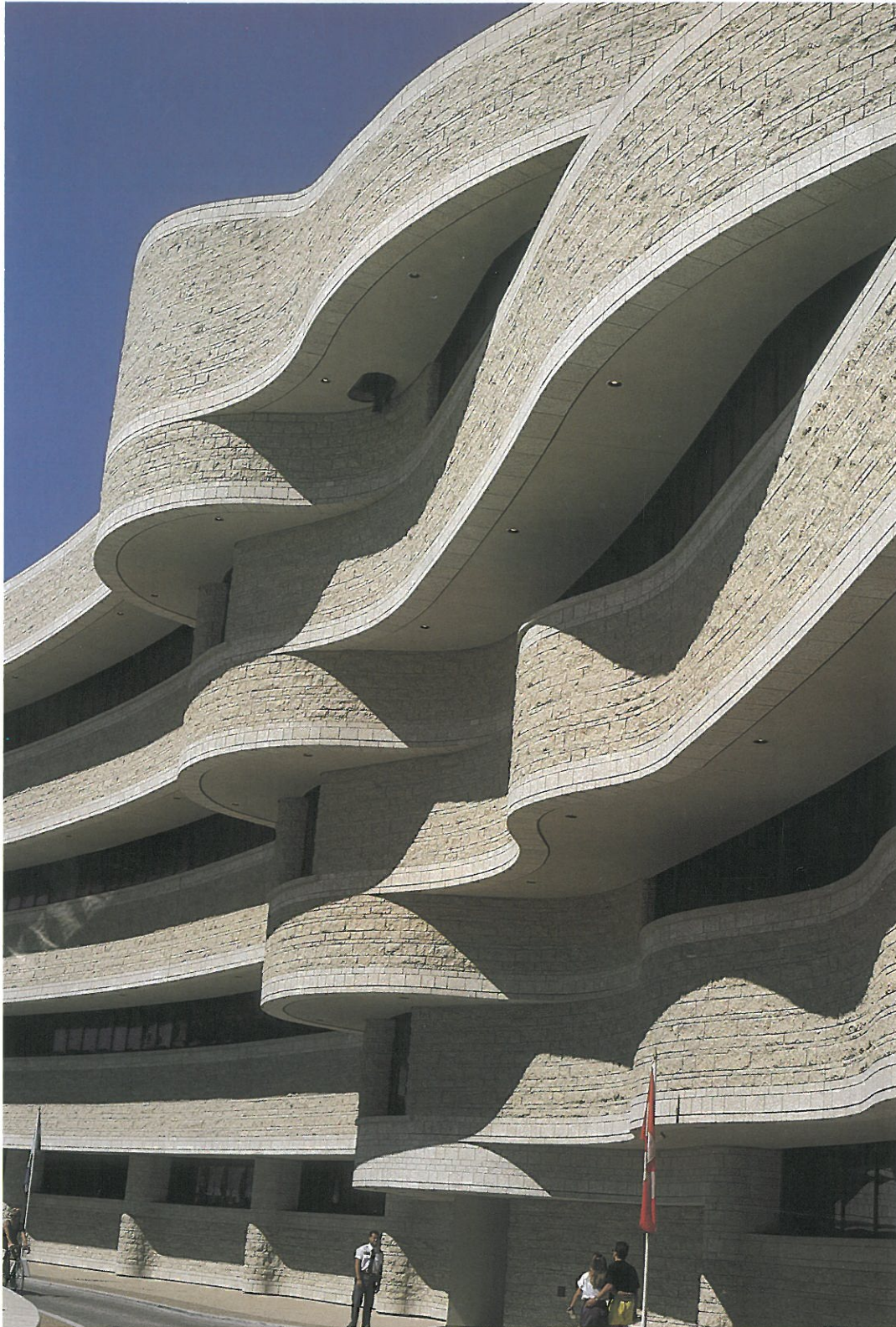


TYNDALL® STONE

A natural quarried limestone



Canadian Museum of Civilization-Hull, Quebec Architect: Douglas J. Cardinal-Ottawa, Ontario

GILLIS  **LIMITED**
QUARRIES

2895 WENZEL STREET
WINNIPEG, MANITOBA
CANADA R2E 1H4
Ph. (204) 222-2242 (Orders)
222-8319 (Gen. Office)
Fax (204) 222-7849

04400 | **STONE**
Limestone

Incomparable in appearance

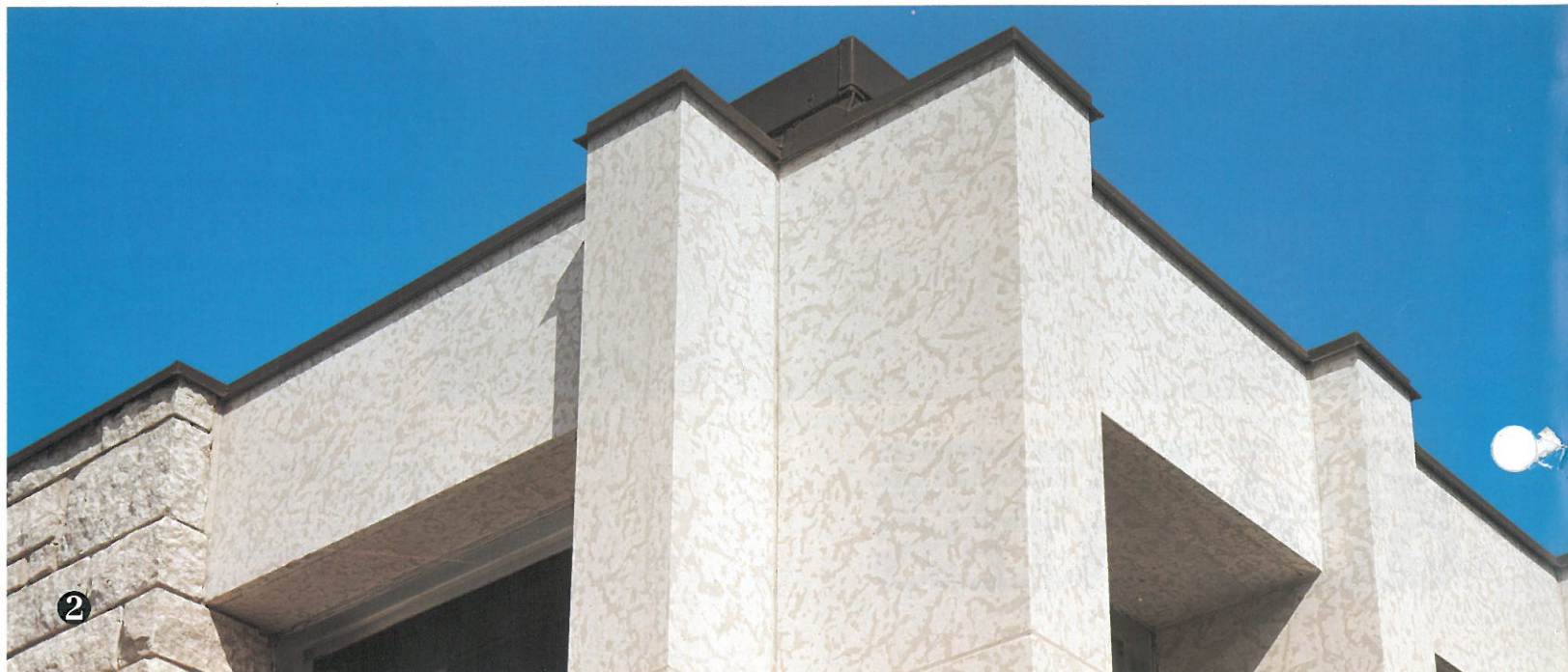
LIGHT COLOR — from across the street, or from a distance, its brilliant light color expresses the designers' creations crisply and cleanly.

TAPESTRY APPEARANCE — from close range, the remarkable leaf-like mottling adds lively visual interest.



Project: GOVERNMENT OF CANADA OFFICE BUILDING — Prince Albert, Saskatchewan
Architects: Scott Bowers Architect & Engineer — Saskatoon, Saskatchewan
Stone: Grey, Rubbed finish, cut dimension stone.

Project: OFFICE BUILDING — Winnipeg, Manitoba — close-up of corner columns showing tapestry mottling.
Stone: Buff, Rubbed finish.



NOTE:

This brochure conforms as closely as possible to the format for technical product literature outlined in the "Manual of Practice - Manufacturers Product Data" published by Construction Specifications Canada. Specifications follow the Three-Part Section Format approved by CSC and CSI. File numbers are derived from "Masterformat."

General Information

DESCRIPTION AND TYPES

Tyndall Stone is a natural quarried, medium density, light coloured, mottled, dolomitic limestone, as defined under ASTM C-568-67 and C-119-50 and is usually sold under one or the other of two broad classifications:

Cut Stone: (Dimension Stone) Stone custom cut and shaped to specific dimensions for an individual project from architectural drawings.

Random Ashlar: Standard stock pre-cut coursed stone strips in various standard size thicknesses and heights (but in random lengths), or, uncoursed stone pieces in random sizes, laid in mortar in an irregular pattern.

PRINCIPAL USES

Tyndall Stone may be used in veneered or bearing walls. Some uses are:

Cut Stone: Cut stone panels for exterior and interior walls, columns, sills, steps, platforms, copings, flooring. Special uses - mausoleums, table tops, roof tiles, etc.

Random Ashlar: Random facings for buildings, homes, fireplaces, chimneys, planters, garden and retaining walls, and as flagging for walks and patios.

CHARACTERISTICS

The significant characteristics of Tyndall Stone are: structural strength, durability, low maintenance, fire resistance, sound reduction, and aesthetic appeal. (See "Technical Information".)

COLORS

The overall effect as seen from a distance is quite light colored, almost white. In fact, two delicate shades are available:

Buff: A light creamy beige with pastel brown mottling.

Grey: A pale bluish grey with grey-brown mottling.

FINISHES

Tyndall Stone may be finished in a variety of ways. In cut stone a "rubbed" or machined-smooth face is usual. In random ashlar facings the "split-face" is most popular. The following special finishes are also available with either type of stone: sawn face, bushhammered face, pointed face, rustic face. (See illustrations and descriptions in Textures and Finishes Section, page 5.)

SIZES

Thickness: A 90mm thickness is standard for cut stone panels. Thinner stone may be used as building codes permit. Thinner stone has been used for first floor panelling, interiors, spandrels, and other special

locations, as well as for re-facing existing walls. The best price for thinner material is obtained by using a 57mm thickness. Other thicknesses provide little or no saving over standard thicknesses. Maximum stone thickness without stylolitic seams is 600mm.

Widths and Lengths: Sizes are limited by quality selection and cutting restrictions. The table below provides an approximate guide to sizes available and pricing of 90mm thick panels.

LENGTHS

	NOT OVER	900 mm	1050 mm	1200 mm	1350 mm	1500 mm	1650 mm	1800 mm	OVER 1800mm
W I D T H S	600mm	L	L	L	S	S	H	H	
	900mm	L	S	S	S	H	H		
	1050mm	S	S	S	H	H			
	1200mm	S	S	H	H				
	OVER 1200mm				SPECIAL				

(L = Lower S = Standard H = Higher)

Random Ashlar standard sizes are as follows:

Course heights: 57mm, 90mm, 123mm, 190mm

Wall thickness: (Bed Depth) 90mm (+ -)

Lengths: Random, approximately 300mm (+ -) to 900mm (+ -)

COSTS

Note: Costs vary due to sizes, shapes, finishes, volumes, freight and tax rates. Generally, Cut Stone prices are competitive with other limestones and architectural precast concrete. For these reasons on the table above, they have been shown as Lower, Standard, Higher and Special. Random Ashlar prices are approximately competitive with top quality clay face brick. For specific price quotations contact an authorized representative or the company.

LIMITATIONS

Contact with wet Portland Cement (concrete) should be avoided since staining of stone can occur. (See "Notes on Staining".)

Sizes of cut stone panels available are limited. (See "Sizes" and "Panel Treatment".)

NOTES ON STAINING

Brown "rust" staining in buff stone and white efflorescence in grey stone is caused by a reaction with alkaline waters that have seeped into the stone. This alkali usually comes from common grey portland cement in mortar or concrete. Staining can be easily avoided by taking proper precautions. (continued on next page)

TO AVOID STAIN

Separation: Avoid direct contact of stone against concrete members by air space or flashing. Prevent moisture from passing between the two by vapor barrier or asphalt waterproofer on concrete.

Mortar: Do NOT use common grey portland cement for regular or colored mortar. Use white non-staining portland cement (Medusa or equal). Keep mortar as stiff as possible. Do NOT use an integral waterproofer in the mortar mix.

Back-Up and Caps: Wherever possible use CLAY brick not concrete brick. Use stone, not concrete, for copings and caps.

Construction and Waterproofing: Refer to "Specifications" under relevant sections.

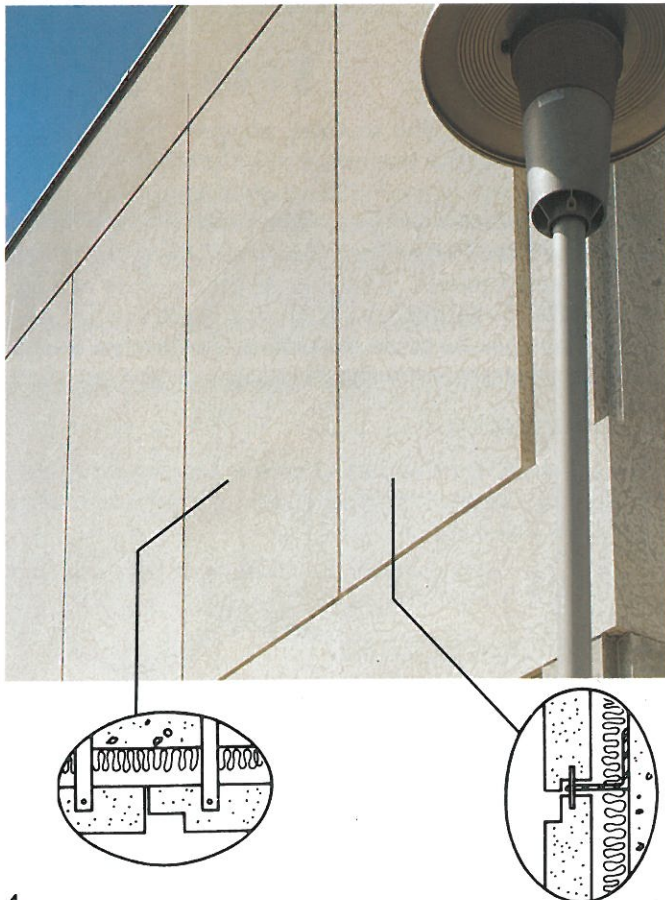
AVAILABILITY

Cut Dimension Stone: Because of the specialized drafting, quarrying and plant production requirements of custom cut architectural dimension stone, all queries should be directed to the head office.

Random Ashlar: Stocks of some varieties are regularly maintained in a number of Canadian cities. Names and addresses of distributors and dealers are available upon request.

PANEL TREATMENT

Sometimes design requires the appearance of massive stone panels, larger than available stone sizes. This effect can often be achieved economically through the use of smaller size stone panels, using flush joints with stone colored mortar, and by specifying a bold decorative groove to provide shadow detail and outline "panels". (See illustrations below.)



Technical Information

Note: The physical and chemical properties vary somewhat depending on whether the sample being tested is buff or grey, wet or dry, or contains more or less mottling. The following tests are representative averages.

CHEMICAL ANALYSIS

Calcium carbonate	85.18%
Magnesium carbonate	13.03
Silica	1.05
Ferric oxide42
Alumina23
Calcium phosphate09
	<hr/>
	100.00%

WEIGHT — (Dry) - 2435 kg/m³

SPECIFIC GRAVITY — 2.44

COMPRESSIVE STRENGTH — (ASTM C-170-50)

(average) - dry - 62.8 M Pa

(average) - wet - 64.8 M Pa

MODULUS OF RUPTURE — (ASTM C-99-52)

(average) - dry - 9.9 M Pa

(average) - wet - 5.2 M Pa

WATER ABSORPTION — (ASTM C-97-47)

(average) 3.49%

MODULUS OF ELASTICITY — 41.37 G Pa

COEFFICIENT OF THERMAL EXPANSION —

Per °C - 5.4 x 10⁻⁶

THERMAL RESISTANCE —

(90 mm thick stone — stone only — no allowance made for film effect.) $\frac{102\text{m}^2\text{°C}}{\text{W}}$

LIGHT REFLECTANCE — Split Face — 70% Cut stone — 82%

(NOTE: The light color and light-reflective qualities of Tyndall Stone make it particularly suitable for colored flood-lighting, after dark.)

SOUND RATING — N.B.C.C. class II. (Sound Reduction Factor - 90mm thick stone - 42 decibels.)

FIRE RESISTANCE — Tyndall Stone is not fire rated under N.B.C.C., but as a limestone is classified as a non-combustible material. Independent U.S. tests have rated a 100mm thick panel of similar limestone at 1 1/2 hours. Tyndall Stone will not support combustion and calcines at temperatures about +816°C.

DURABILITY — Stone from the present quarries has been widely used since 1895 in major buildings across Canada, and has proven to be a most durable material. It does not spall or pit. The first recorded use of Tyndall Stone was for construction of a warehouse and the walls of Lower Fort Garry in 1832. After one hundred and sixty years the stone is still in a perfect state of preservation.

Textures & Finishes

❶ RUBBED FINISH (Shown 1/2 actual size) A machine-ground finish, similar to a planer finish. This is our standard finish and is usually recommended first because it best displays the distinctive tapestry effect of the decorative mottling. Plain unmottled stones often require the addition of interest through a textured surface. With Tyndall Stone the mottling serves this purpose. A rubbed finish will stay cleaner than a textured finish.

❷ SAWN FINISH (Shown 1/2 actual size) Some circular diamond tooth saw marks show with some cross marks. Recommended only in smaller sizes, as the stone face may not be in a perfectly true plane. In larger sizes this may be overcome with in-set joint treatment.

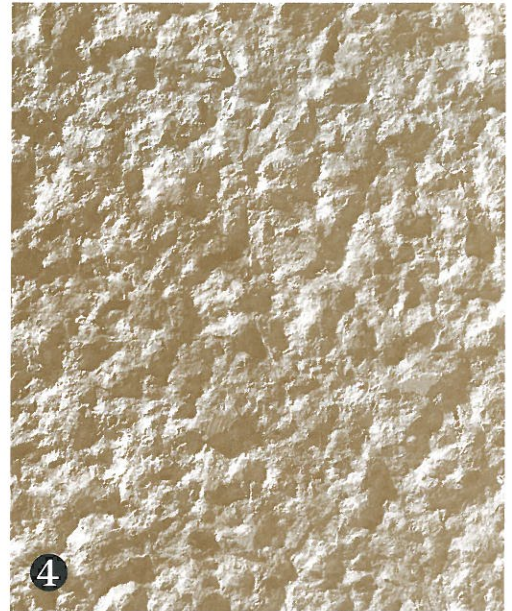
❸ BUSHHAMMERED FINISH (Shown 1/2 actual size) A finely grained, textured surface, applied with an air gun. This finish reduces the contrast between the mottling and the background.

❹ POINTED FINISH (Shown 1/2 actual size) A rough textured, picked, or pebbled finish, usually applied evenly to the edge of the stone. This requires applying the pointed finish to larger slabs and then resawing the edges. Coarser than bushhammered, this finish also reduces the contrast between mottling and background and adds shadow detail.

❺ SPLIT-FINISH (Shown 1/12 actual size) An irregular rock-like split finish, achieved by splitting stone with a hydraulic shear. Available in coursed random ashlar facings only. (Height limit-300mm.)

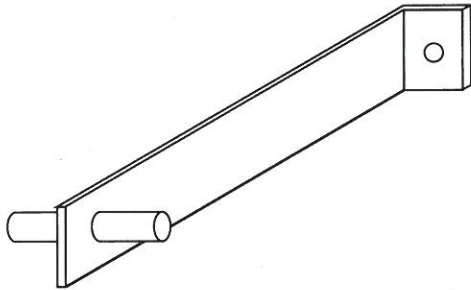
❻ RUSTIC FINISH (Shown 1/2 actual size) A rugged textured finish obtained by wedging stone apart along the sedimentary planes which divide the various layers of stone. Some layers contain a deeper coloring than others, ranging from deep yellow through medium brown to light buff in the buff layers, and blue-grey through grey-black in the grey layers.

SPECIAL FINISHES Special grooves and patterns may be made by sawing or grinding. Another texture is made possible by sand blasting.



Construction Details

TYPICAL ANCHORING



TYPICAL EXTERIOR ANCHOR

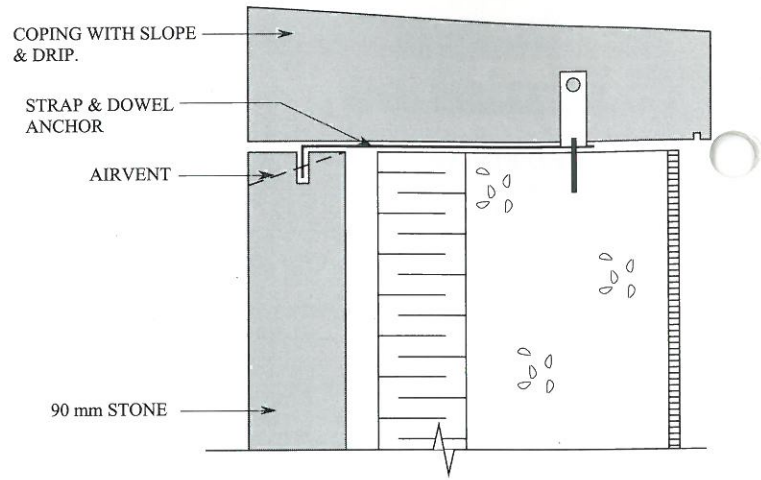
STRAP ANCHOR - 3mm THICK X 30 mm WIDE X LENGTH REQUIRED.
DOWELS - 10 mm X 75 mm LONG.

- STRAPS ARE TO BE TURNED DOWN INTO MASONRY, OR SET INTO DOVE TAIL SLOTS IN CONCRETE, OR FASTENED WITH 10 mm X 50 mm LONG SLEEVE EXPANSION BOLTS INTO EXISTING MASONRY / CONCRETE, OR BOLTED TO STRUCTURAL STEEL.

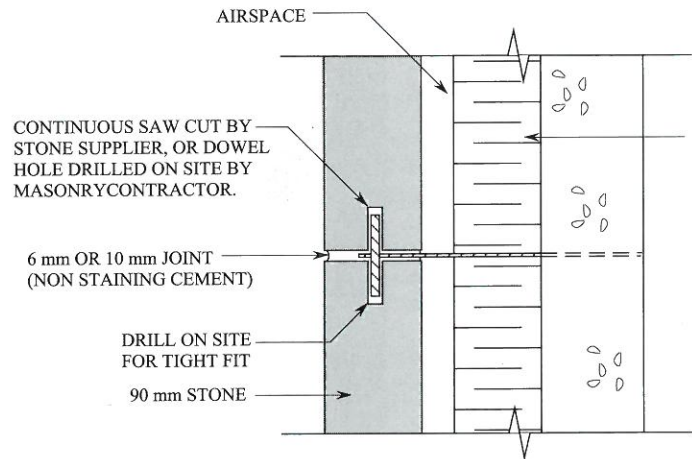
NOTE: - STRAPS / DOWELS TO BE OF CORROSION RESISTANT OR NON-CORROSIVE METAL.

TYPICAL ANCHORING METHODS

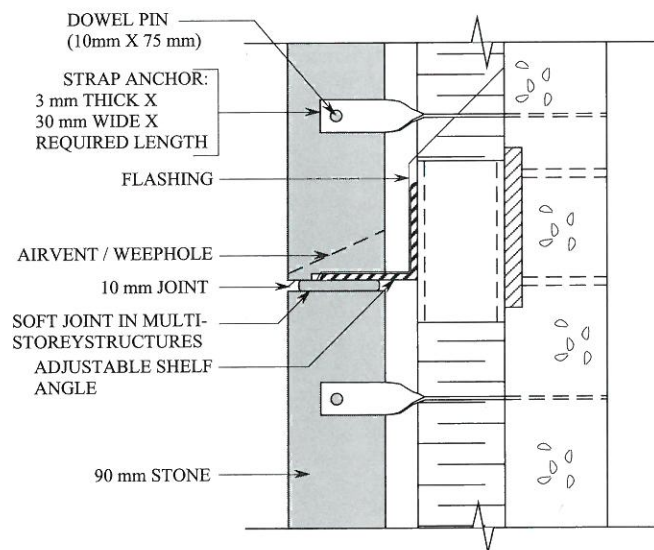
Generally, stones are dowelled together with metal dowels (typically 75 mm long and 10 mm in diameter), and tied back with metal straps (usually 30 mm wide x 3 mm thick). The straps are pierced by the dowels and turned into the masonry back - up. Where back - up is poured concrete, a dovetailed anchor is set into a slot cast into the concrete, or, the anchor is fastened to the concrete with an expansion bolt. Provide a minimum of two anchors per stone with three anchors recommended for stones over 1.1 meters square. A supporting steel shelf angle is usual at each floor level. Where stone occurs above and below shelf angles, the current practice is to anchor the stone with side anchors, consisting of *horizontal* dowel / vertical strap configuration to avoid puncturing the angle and flashing. Where *vertical* dowel / horizontal strap anchoring configuration is used for intermediate courses, the stone course immediately below the shelf angle will require a continuous slot in the bottom of the stone to accommodate the setting of the stone with both horizontal and vertical anchor configurations. On multi - storey structures, horizontal joints immediately below each supporting shelf angle must be "soft joints" to allow for structural frame settling or deflection. Top stones are cramped back. Where convenient, anchors should be welded or bolted to the steel frame. All anchors should be of corrosion resistant metal (ie.: galvanized after fabrication), or non-corrosive metal (ie.: stainless steel, brass, etc.). Anchors are usually supplied by the setting contractor, shelf angles by the structural steel contractor, and dovetail slots by the concrete contractor.



COPING DETAIL & ANCHORING



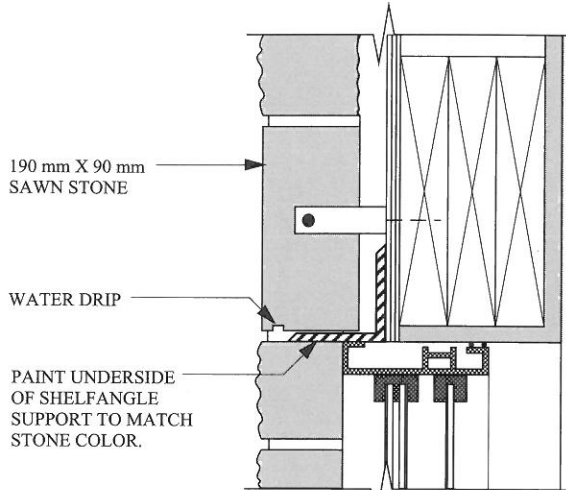
INTERMEDIATE ANCHORING



DETAIL AT SHELF ANGLE

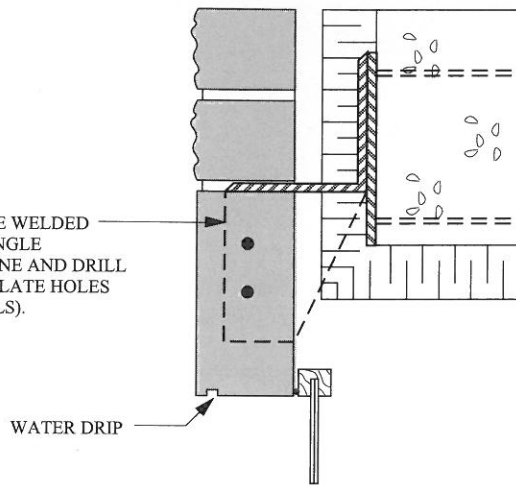
SCALE: 1:7

LINTELS AND SILLS



STANDARD LINTEL DETAIL

STEEL PLATE WELDED
TO SHELF ANGLE
-(ALIGN STONE AND DRILL
THROUGH PLATE HOLES
FOR DOWELS).



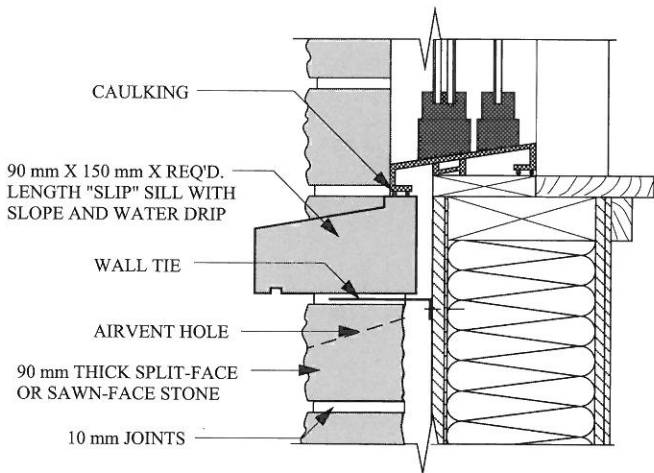
ALTERNATE LINTEL DETAIL

SCALE: 1:7

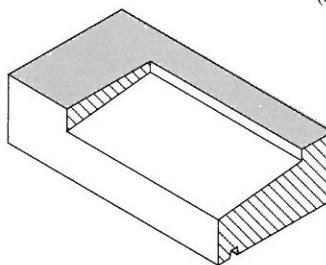
SILL ALTERNATES (WITH SLOPE AND DRIP)

"LUG" SILLS

(SCALE 1:10)



STANDARD SILL DETAIL

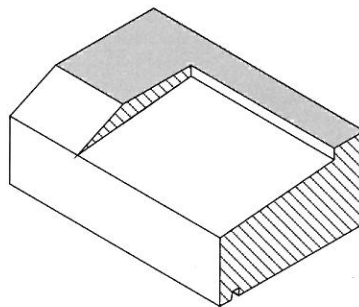
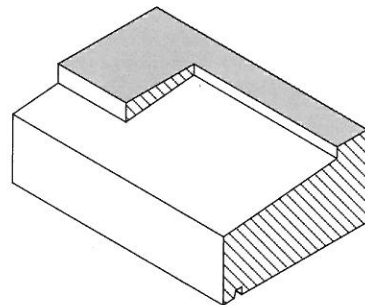


FULL LUG

- 90 mm X 150 mm
X REQUIRED LENGTH

STOPPED LUG

- 123 mm X 190 mm
X REQUIRED LENGTH



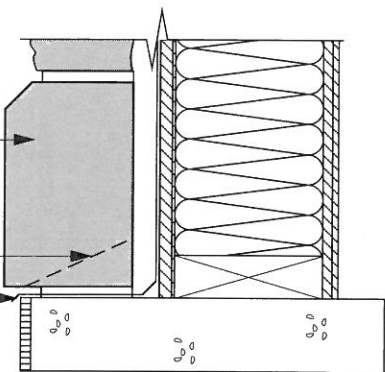
SLOPED LUG

- 123 mm X 190 mm
X REQUIRED LENGTH

123 mm THICK X
190 mm HIGH STONE
BASE WITH CHAMFERED
EDGE.

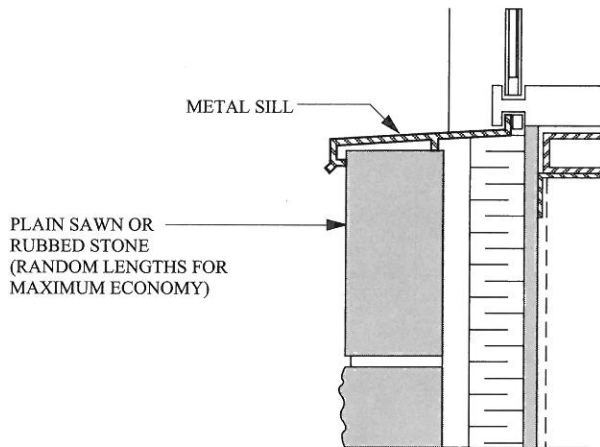
WEEPHOLE

FLASHING



STONE BASE DETAIL

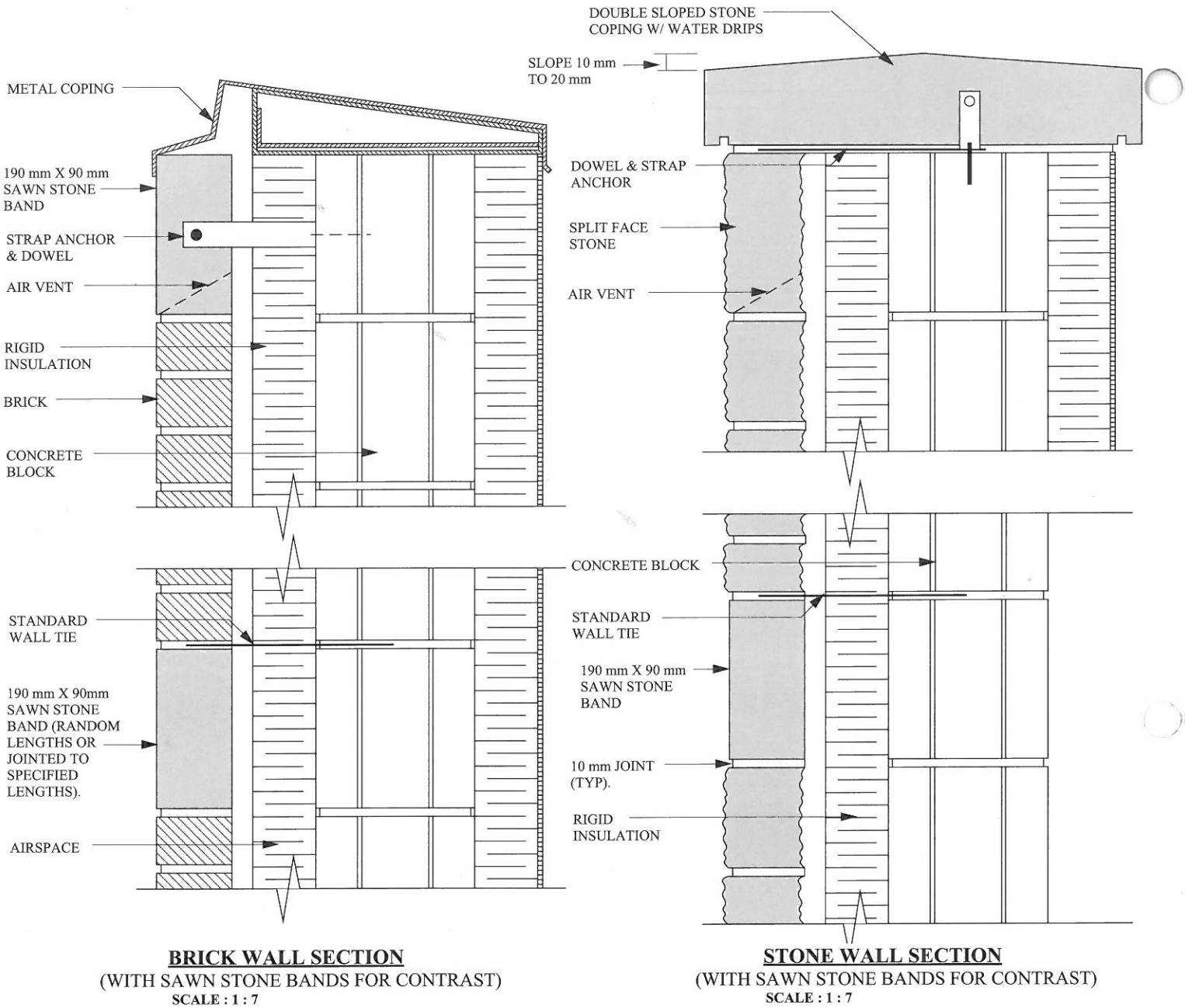
SCALE: 1:7



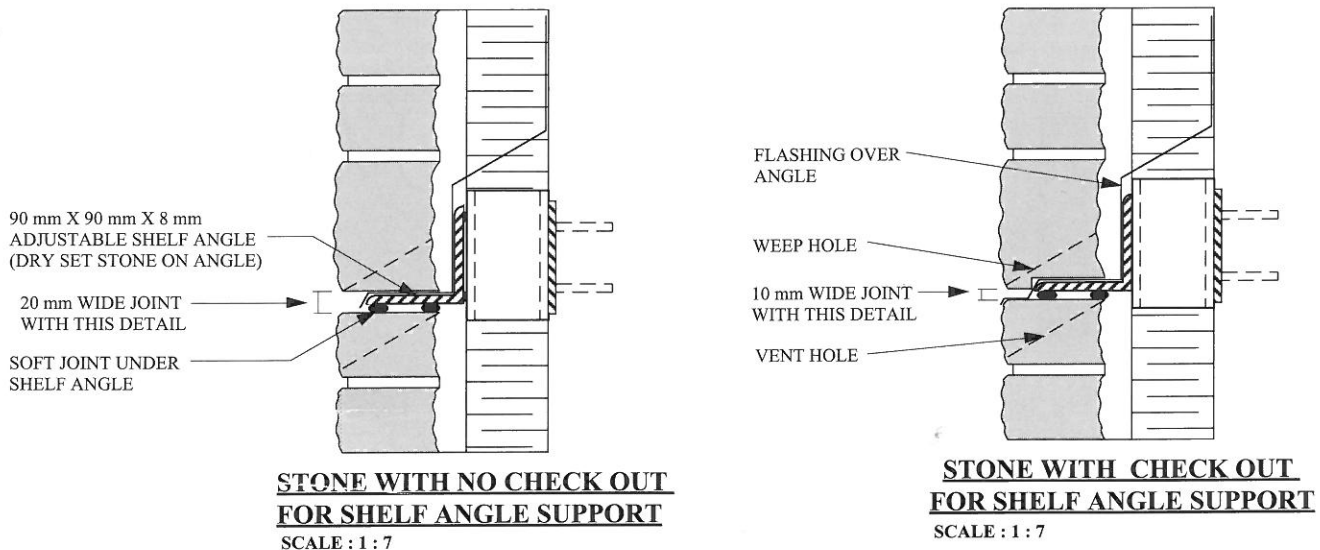
ALTERNATE METAL SILL

SCALE: 1:7

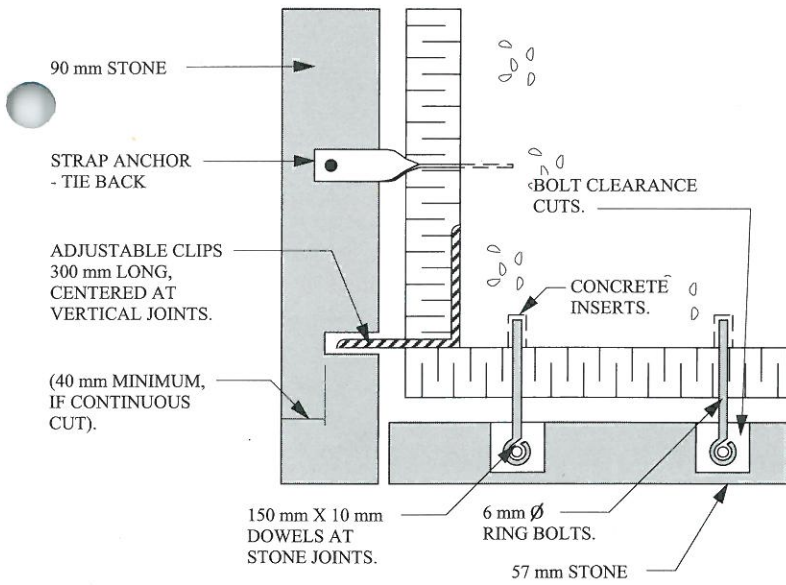
ALTERNATE WALL SECTIONS AND STONE DETAILS



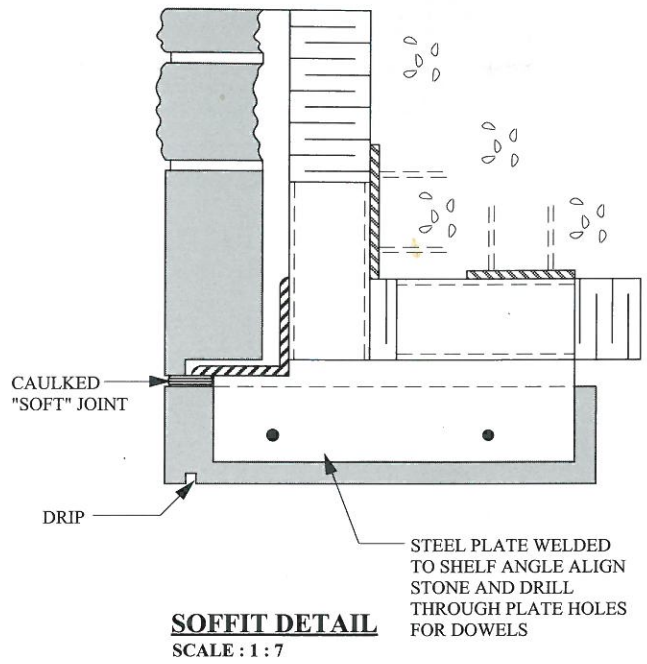
ALTERNATE JOINT SIZE CONSEQUENCES AT CONTINUOUS STEEL SHELF ANGLE SUPPORTS



SOFFIT DETAILS

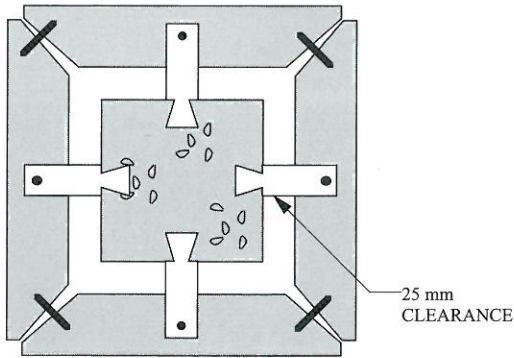


SOFFIT DETAIL
SCALE : 1 : 7



SOFFIT DETAIL
SCALE : 1 : 7

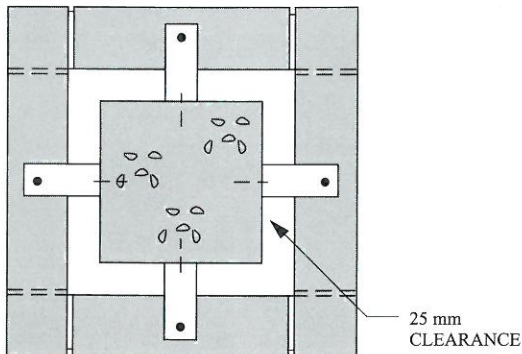
COLUMN COVERS



MITRED COLUMN COVER
SCALE : 1 : 7

12 mm X 12 mm QUIRK CORNER CLAMP 75 mm X 6 mm Ø TURNED DOWN 25 mm EACH END OMIT ON LARGER COLUMNS WHERE THERE ARE 2 STRAP ANCHORS PER PIECE.

ANCHORS TO BE DOWELS AND STRAPS.



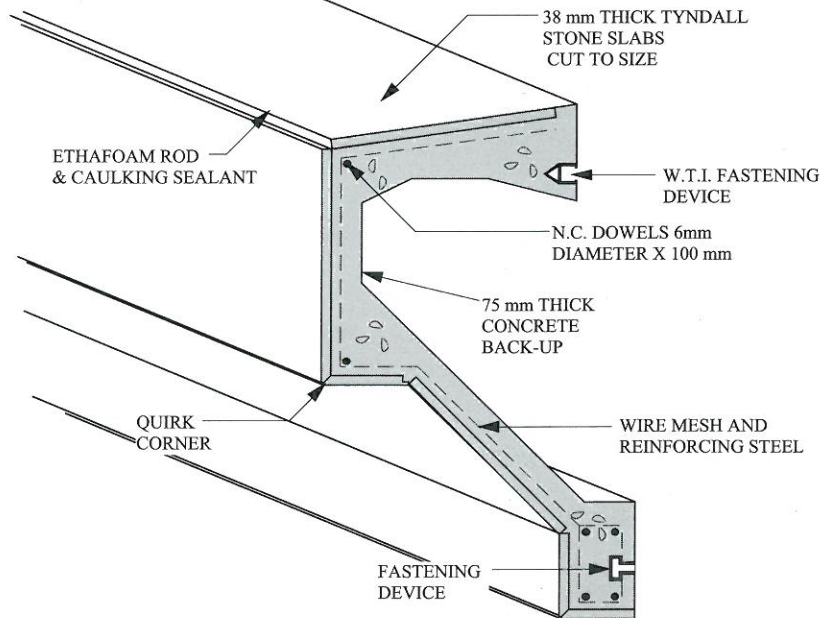
ALTERNATE BONDED OR STACK BONDED.

BONDED COLUMN COVER
SCALE : 1 : 7

CASE HISTORY :

Stone Faced Precast Concrete

THIN TYNDALL STONE VENEER BONDED TO PRECAST CONCRETE UNITS



The Pre-cut stone slabs were placed into wooden forms. Then, dowels slanted at 45 degrees were inserted into holes drilled in the stone. Next, wire mesh was set into place approximately 12 mm off the back of the stone, followed by steel reinforcing rods and lifting and fastening devices. Finally, concrete mix was poured and vibrated. After setting, joints were caulked and the finished units (some as large as 6 metres in length, 1 1/2 metres high and 1 metre wide) were trucked to the job site and fastened into place on the previously built structure.



(ABOVE AND BELOW THIS PAGE)

Project: THE REGIONAL HEADQUARTERS COMPLEX — Cartier Square, Ottawa, Ontario
Architects: Moriyama & Teshima Architects — Toronto, Ontario
Stone: Grey, Split-Face and Sawn-Face random ashlar, Sawn copings sills, soffits and trim

(PAGE 11-TOP & BOTTOM)

Project: CANADIAN MUSEUM OF CIVILIZATION — Hull, Quebec
Architects: Douglas J. Cardinal — Ottawa, Ontario
Stone: Buff, Split-Face and Sawn-Face Random Ashlar, Sawn copings, sills, soffits, and special curved cut dimension stone units







(ABOVE & BELOW THIS PAGE)
Project: EMPRESS HOTEL RESTORATION —
 Victoria, British Columbia
Architects/Engineers: Poon Carruthers Archi-
 tects — Vancouver, B.C. / Calgary — James
 Consulting Inc. — Burnaby, B.C.
Stone: Buff, Rubbed finish, cut dimension stone



(PAGE 13-TOP & BOTTOM)
Project: CHATEAU LAKE LOUISE HOTEL EX-
 PANSION — Lake Louise, Alberta
Architects: Carruthers & Associates Archi-
 tects Ltd. — Calgary, Alberta
Stone: Buff, Rubbed and Pointed finish, cut
 dimension stone





(ABOVE) Project: ADMINISTRATION BUILDING, UNIVERSITY OF SASKATCHEWAN — Saskatoon, Saskatchewan
 Architects: Wiens Architects Ltd. — Regina, Saskatchewan Stone: Buff, Sawn finish, cut dimension stone



(ABOVE) Project: WASCANA REHABILITATION CENTRE — Regina, Saskatchewan
 Architects: Building Design 2 — Regina, Saskatchewan
 Stone: Buff, Sawn finish, bands columns and trim

(BELOW) Project: JOHN PAUL II COLLEGIATE — North Battleford, Saskatchewan
 Architects: Ferguson Folstad Friggstad — Saskatoon, Saskatchewan
 Stone: Buff, Rubbed Finish & Split-Face finish bands quoins & trim





(ABOVE) Project: ROYAL BANK OF CANADA BUILDING — Lethbridge, Alberta
Architects: The Cohos Evamy Partnership — Calgary, Alberta
Stone: Buff, Split-Face machine pitched and Sawn-Face Random Ashlar, and cut stone

(BELOW) Project: SHELL CANADA LTD. OFFICE BUILDING — Calgary, Alberta
Architects: The Cohos Evamy Partnership — Calgary, Alberta
Stone: Grey, Split-Face and Sawn-Face Random Ashlar, and cut stone



Specifications Cut Dimension Limestone

PART 1.0 — GENERAL

- 1.1 SECTION INCLUDES: Work under this section shall include all labour, materials, equipment and services necessary for the completion of all cut dimension limestone work as shown on the drawings or hereinafter specified.
- 1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION: (e.g. -pavers or landscaping blocks, etc.)
- 1.3 RELATED SECTIONS: **Other Masonry Sections** (e.g. - Procedures, Mortar & Grout, Accessories, Reinforcing & Tying, Brick, Concrete Units); Dovetail slots in concrete for anchors; Steel inserts, shelf angles, supports; Anchors & Ties; Insulation; Air or Vapor Barrier, Caulking & Sealants; etc.
- 1.4 SUBMITTALS:
 - .1 **Shop Drawings** — Furnish and submit detailed shop drawings under provisions of Section 01300, showing accurately dimensions and anchoring of all cut stone work. Setting numbers to be affixed to shop drawings after final approval and copies distributed as required. No work to be started until final approval of shop drawings.
 - .2 **Samples** — Submit samples under provisions of Section 01300 indicating range of color and finish to be supplied.
- 1.5 QUALITY ASSURANCE:
 - .1 **Mock-Up** (Optional) — Provide Mock-up under provisions of Section 01400.
- 1.6 DELIVERY, STORAGE, AND HANDLING: Deliver stone promptly and in setting sequence. On arrival check all stone for damage and report to carrier, noting damage on delivery document. Handle stone carefully with competent workmen and proper equipment. Avoid chipping edges or corners. Store stone off ground and protect from dirt and damage.
- 1.7 PROJECT/SITE CONDITIONS:
 - .1 **Existing Conditions** — Inspect and arrange for correction of defects or dimension errors in concrete or steel structural surfaces which would affect stone work.
 - .2 **Field Measurements** — Cooperate with stone supplier, verify (and if necessary provide) job measurements needed for the preparation of shop drawings.

PART 2.0 — PRODUCTS

- 2.1 MANUFACTURER — Limestone shall be as quarried and supplied by Gillis Quarries Limited, Winnipeg, Canada.
- 2.2 MATERIAL — Stone shall be Manitoba Tyndall Stone, a medium density cut dimension limestone per ASTM C-119 and ASTM C-568. Stone shall be free from all defects which would affect appearance or durability. Quarry seams shall be well back from finished face. Fossils and other natural markings permitted only to the extent that they do not disfigure finished appearance. Loose or large white fossils not permitted.
 - .1 **Color** — shall be (specify — buff, grey, or golden buff color).
- 2.3 OTHER MATERIALS — Include other applicable materials such as: water, sand, lime, cement, mortar, water repellent, insulation, caulking, control joints, anchors and ties, reinforcing, supports, flashing, etc.
- 2.4 MIXES:
 - .1 **Mortar** — for setting:
One (1) part white non-staining cement
One (1) part lime
Six (6) parts sand OR,
.2 One (1) part approved non-staining premixed masonry cement
Three (3) parts sand

Note: If lump lime is used, paste must be properly aged before use. All mixtures must be used before initial set has

taken place — no retempering will be permitted. Do not use integral waterproofing.

.3 Mortar — for pointing:

One (1) part non-staining cement

Two (2) parts white sand

Sufficient lime or lime putty to make as stiff a mixture as is workable.

2.5 FABRICATION:

.1 Shop / Factory Finishing: Stone shall be manufactured accurately to sizes, shapes, and details as indicated on drawings. Except where drawings call for slopes, angles or curves, cut all stone square, with exposed faces true, beds and joints dressed straight and at right angles to faces. Back check stone as required for all structural work as indicated on drawings. Cut holes and sinkages as required for anchors, cramps and dowels etc. Cut and drill stone as required for the installation of electrical and mechanical work. Number each stone on the back or bed with non-staining paint to correspond to numbering on setting drawings. Projecting stone, steps, sills and copings shall be cut for setting on its natural bed.

.2 Face Finish: shall be (specify — sawn, machine rubbed, bushhammered, machine pointed, sandblasted, rustic, etc.).

PART 3.0 — EXECUTION

- 3.1 EXAMINATION/Verification of Conditions: — (see Part 1 General — Project / Site conditions.)
- 3.2 PREPARATION: (See Part 1 General — Field Measurements)
- 3.3 INSTALLATION/APPLICATION/ERECTION:
 - .1 **Setting Cut Stone:** — Brush stone free of dust, dampen slightly and set stone in accordance with approved setting drawings and numbered stones. Install anchors, dowels, cramps, clips, etc. as shown on approved shop drawings. Use competent workmen only and set stone plumb, true and level, with joints, anchor and lewis holes flushed full with mortar. All joints shall be ___mm (6mm, or 10mm) wide except where otherwise indicated. Do not build up stone facing more than one course above backing. Use wood wedges (fully expanded by soaking) where necessary to prevent crushing mortar under heavy stones. Projecting stones shall be propped or anchored until wall above is set. Projecting stones shall have 65% of mass within the bearing wall. Set ends only of lugged sills or steps in full bed of mortar, balance of bed shall be free of mortar until pointed. Slip sills shall have a full bed of mortar. After setting stone, rake mortar out of face joints to a depth of 20mm to allow for pointing. All mortar splashed on exposed stone faces to be removed at once with sponge and water.
 - .2 **Pointing:** Brush raked out joints clean, remove wedges, fill joints with pointing mortar, pack, work into joints, finish with pointing tool concave.
- 3.4 FIELD QUALITY CONTROL: After setting, protect projecting areas, corners etc. with boards. Cover walls at night and during rains.
- 3.5 ADJUST AND CLEAN: Each day brush completed stonework clean with fibre bristle brushes, preferably dry, or with a minimum amount of clean water. Do NOT use wire brushes, acids or acidic or alkaline cleaning compounds.
- 3.6 PROTECTION:
 - .1 **Water Repellent (Optional)** — When exterior stonework is thoroughly dry, apply one floodcoat of a water solution of sodium methyl silicate ("Union Carbide R-20", or equal). Use brush, roller, or low pressure spray.

NOTE: These guide specifications follow as closely as possible the "MASTER SPECIFICATION" format developed and recommended by Construction Specifications Canada.

Specifications Random Ashlar Limestone

PART 1.0 — GENERAL

1.1 SECTION INCLUDES:

Work under this section shall include all labour, materials, equipment and services necessary for the completion of all random ashlar limestone work as shown on the drawings or hereinafter specified.

1.2 RELATED SECTIONS:

Other Masonry Sections (e.g. — Procedures, Mortar & Grout, Accessories, Reinforcing & Tying, Brick, Concrete Units), Dovetail slots in concrete for anchors; Steel inserts, shelf angles, supports; Anchors & Ties; Insulation; Air or Vapour barrier; Caulking & Sealants; etc.

1.3 SUBMITTALS:

1. Samples — Submit samples under provisions of Section 01300 indicating range of colour and finish to be supplied.

1.4 DELIVERY, STORAGE, AND HANDLING:

Deliver stone promptly in accordance with job schedule requirements. On arrival check all stone for damage and report to carrier, noting damage on delivery document. Handle stone carefully. Avoid chipping edges or corners. Store stone off ground and protect from dirt and damage.

1.5 PROJECT/SITE CONDITIONS:

1. Existing Conditions — Inspect and arrange for correction of defects or dimension errors in concrete or steel structural surfaces which would affect stone work.

PART 2.0 — PRODUCTS

2.1 MANUFACTURER — Limestone shall be as quarried and supplied by Gillis Quarries Limited, Winnipeg, Canada.

2.2 MATERIAL — Stone shall be Manitoba Tyndall Stone Random Ashlar, a medium density limestone per ASTM C-119, and ASTM C-568.

1. Color — shall be (specify — buff, grey, golden buff, or mixed color. If mixed, specify percentages of each).

2. Grade — shall be Standard Grade. (Specify Select Grade only for special interiors.)

2.3 OTHER MATERIALS — Include other applicable materials such as: water, sand, lime, cement, mortar, water repellent, insulation, caulking, control joints, anchors & ties, reinforcing, supports, flashing, etc.

2.4 MIXES:

Mortar —

One (1) part white non-staining cement

One (1) part lime

Six (6) parts sand OR,

One (1) part approved non-staining premixed masonry cement

Three (3) parts sand

NOTE: If lump lime is used, paste must be properly aged before use. All mixtures must be used before initial set has taken place — no retempering will be permitted. Do not use integral waterproofing.

2.5 FABRICATION:

1. Shop/Factory Finishing: Stone shall be supplied in random lengths (to be further jointed on the job by the setting contractor as required) and shall be supplied in course heights and wall thickness as follows:

Course heights shall be:

2. Single Course — specify 57mm, 90mm, 123mm, or 190mm course height.

3. Three Course — specify 15% to be 57mm course, 50% to be 123mm course, 35% to be 190mm course.

4. Rustic Ranch Rock, Rustic Ledge Stone — specify random course heights. (WEB-WALL — specify approximate sizes and percentages of pieces desired.)

5. Wall Thickness shall be — specify 90mm for normal veneered or cavity walls. Specify greater depths as required for engineered load bearing walls.

6. Top & Bottom Beds shall be — specify "Sawn" for SINGLE COURSE and THREE COURSE, and "Split" for all other varieties.

7. Ends shall be — specify "Sawn" for SINGLE COURSE

and THREE COURSE, and "Split" for all other varieties. **8. Face Finish shall be** — specify "Split-Face" or "Sawn-Face" etc. for SINGLE COURSE and THREE COURSE. Optional: Also, with "Split-Face," specify "Pitched Face" if a more prominently protruding or bull-nosed appearance is desired. Specify "Rustic-Face" for other varieties.

PART 3.0 — EXECUTION

3.1 EXAMINATION/VERIFICATION OF CONDITIONS: (see Part 1 General — Project / Site Conditions.)

3.2 INSTALLATION/APPLICATION/ERECTION:

1. Setting Random Ashlar Stone:

2. Patterns & Joints — SINGLE COURSE — Stone strips shall be laid up in full beds of mortar in a series of continuous single rises or coursings, taking care to build best split-face to outside. Stagger vertical joints for balanced appearance; no vertical joint to fall directly over another. All vertical joints to be sawn for best appearance. All joints to be 10mm in width. Mortar in all vertical joints to be packed flush with split stone face. Mortar in all horizontal joints to be tooled slightly. Protruding stone end edges to be chipped off on the job by the setting contractor to create a more continuous coursing, and to achieve a more monolithic appearance to finished wall.

3. Pattern & Joints — THREE COURSE — Stone strips shall be laid up in full beds of mortar in various lengths and course heights, taking care to form random pattern. Select and build best face to the outside. Break horizontal joints as often as possible. No horizontal joint to continue for more than five stones, (except where a control joint is required). Break vertical joints as often as possible. No vertical joint to continue for more than three stones, (except where a control joint is required). All vertical joints to be sawn. All joints to be 10mm width. Protruding stone end edges to be chipped off on the job by the setting contractor to achieve a more monolithic appearance to finished wall.

4. Pattern & Joints — OTHER — Stone shall be laid up in full beds of mortar to form pattern and joint sizes as indicated on the drawings and/or hereinafter specified.

5. Colors (If mixed color specified) — Select colors to provide a random blended mixture of buff and grey stones. ___% of wall area to be buff, and ___% to be grey. Care to be taken for balanced distribution of colors.

6. Anchoring — Stone to be anchored to back-up wall with metal wall ties as specified spaced not more than 400mm apart vertically and 600mm horizontally (or as called for by local code). All anchors to be corrosion resistant material and to be supplied by the setting contractor.

7. Pitching — Where machine-pitched face stone is being supplied, specify "stone ends to be pitched to match, on the job by the setting contractor."

8. Other — Specify other related jobsite installation requirements such as: Structural supports, Flashing, Insulation, Vent and Weep holes, special cutting and fitting, etc.

3.3 FIELD QUALITY CONTROL:

After setting, protect projecting areas, corners, etc., with boards. Cover walls at night and during rains.

3.4 ADJUST AND CLEAN:

Each day brush completed stonework clean with fibre bristle brushes, preferably dry, or with a minimum amount of clean water. Do NOT use wire brushes, acids, or acidic or alkaline cleaning compounds.

3.5 PROTECTION:

Water Repellent (Optional) — When exterior stonework is thoroughly dry, apply one floodcoat of a water solution of sodium methyl silicate ("Union Carbide R-20" or equal). Use brush, roller, or low pressure spray.

NOTE: These guide specifications follow as closely as possible the "MASTER SPECIFICATION" format developed and recommended by Construction Specifications Canada.

Tyndall Stone

NATURAL BEAUTY — Light coloring — subtle tapestry mottling.

PROVEN DURABILITY — Natural stone will not warp, shrink, fade, or rot.

TRUE ECONOMY — Reduced maintenance. No painting, peeling or replacing. Installed cost competitive with comparable quality materials.

VERSATILITY — Compatible with any surrounding color or texture — Adaptable to contemporary design. Especially suitable for colored floodlighting.



(ABOVE) Project: JOHN BODDY DEVELOPMENTS LTD. HEAD OFFICE BUILDING — Scarborough, Ontario Architects: Deacon Arnett Murray & Rankin — Agincourt, Ontario Stone: Buff, Three-Course Split-Face random ashlar machine pitched, and Buff, Rubbed finish cut dimension stone trim



(ABOVE) Project: LAW COURTS BUILDING — Winnipeg, Manitoba Architects: Number Ten Architectural Group — Winnipeg Stone: Buff, Sawn finish cut dimension stone

(BELOW) Project: DEER LODGE CENTRE — Winnipeg, Manitoba Architects: The Health Care Consortium: Smith Carter Partners/The IKOY Partnership — Winnipeg, Manitoba Stone: Buff, carved hands sculpture



(ABOVE) Project: ORIENTATION NODE THE FORKS NATIONAL Arch. Ptnrshp (Ldsepg) Hilderman Witty Crosby Hanna Assoc. Stone: Buff, Rubbed finish cut dimension stone



(BELOW) Project: GLENROSE REHABILITATION HOSPITAL — Edmonton, Alberta Architects: Schmidt Feldberg Croll Henderson Architects — Edmonton, Alberta Stone: Buff, Rubbed finish cut dimension columns, sills, copings, lintels, bands and trim

(ABOVE) Project: ARCHITECTURE Stone: M... (BELOW) Project: LTD. — R...





(ABOVE) Project: AIR COMMAND HEADQUARTERS BUILDING — Winnipeg, Manitoba
Architects: Aircom Consultants — Winnipeg, Manitoba Stone: Grey, Sawn finish cut dimension stone panels



Historic Park — Winnipeg, Man. *Architects: (Bldg) Friesen Tokar*
Mixed Rustic Ranch Rock / Buff Rough hewn Quarry Blocks



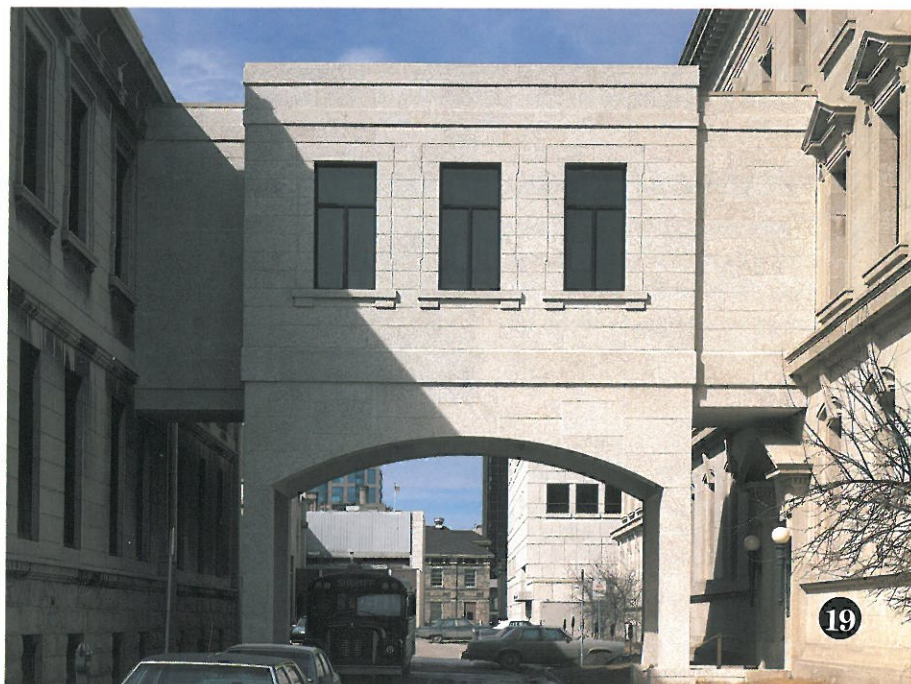
Project: LIBRARY — North Battleford, Saskatchewan
Heetham & Rattan Architects — North Battleford, Saskatchewan
Red Color, Split-Bed Rustic LedgeStone "Dry-Pack" random ashlar

Project: CITY HALL — Prince Albert, Saskatchewan *Architects: Wiens Architects*
na, Saskatchewan Stone: Buff, Sawn and Rubbed finish cut dimension stone



(ABOVE) Project: WATERLOO MENNONITE BROTHERS CHURCH — Waterloo, Ontario
Architects: Turhan Okeren Architect Ltd. — Saskatoon, Saskatchewan / Maurice van Nes-Waterloo, Ontario
Stone: Grey, Split-Face and Sawn-Face random ashlar

(BELOW) Project: LINK — LAND TITLES OFFICE / LAW COURTS BUILDING — Winnipeg, Manitoba
Architects: Marshall Haid Associates — Winnipeg, Manitoba Stone: Buff, Sawn finish cut dimension stone



Tyndall® Stone

for Enduring Beauty



*Project: CASTLE ON THE SEINE — CONDOMINIUM APARTMENT BUILDING — Winnipeg, Manitoba Architects: MMP Architects — Winnipeg, Manitoba
Stone: Golden Buff, Sawn-Face and Split-Face random ashlar. Sawn sills, soffits, copings. Rustic-Face arches.*

EXPERIENCE - QUALITY - DEPENDABILITY

For over 85 years our company has been a leading and dependable supplier of this unique building stone. Our firm supplied stone to all buildings illustrated in this brochure, and to many outstanding projects across Canada. Existing evidence of our work on permanent display.

TECHNICAL ADVISORY SERVICE

We review drawings, give preliminary cost estimates, and offer sizing, anchoring, and other detailing advice. The architect, contractor or owner is invited to discuss proposed projects with us.

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