NATIONAL RESEARCH COUNCIL OF CANADA
ASSOCIATE COMMITTEE ON THE
NATIONAL BUILDING CODE

ERRATA AND REVISIONS
to the
CANADIAN CODE FOR FARM BUILDINGS
1970

Ottawa
1 July 1972

ERRATA

to the
Canadian Code for Farm Buildings 1970

Errata issued 1 July 1972
by the
Associate Committee on the National Building Code
National Research Council of Canada

The Associate Committee on the National Building Code records the following corrections to the 1970 edition of the Canadian Code for Farm Buildings

ERRATA

Page	Code Requirement	Correction
49	Table XIX	Under "Requirements for Broody Space", "0.5 sq in" should read "0.5 sq ft". After "no bedding" add a comma.
74	Table XXVII, column 1	Under "Swine", line 4, change "25-50 lb" to "26-50 lb".
75	Table XXVII, column 2, line 4	Change ".010*" to "0.10*".
106	Table B-1, column 3, last line	Change "3 to 33 1/4" to "3 to 3 1/4".
141	Figure 2-I	Omit "H" from ordinate title.

REVISIONS
to the
Canadian Code for Farm Buildings 1970

The Associate Committee on the National Building Code recommends that the following revisions be inserted in all copies of the 1970 edition of the Canadian Code for Farm Buildings.

Page	Code Requirement	Revision
2	1.1.2.1., Table I, column 2, line 9	Delete "***" and add "†".
	Notes to Table I	Line 2 of Footnote *** to Table I, add the word "on" after the word "accumulated". After Footnote ***** add Footnote "† Based on 4 rows with 2 birds per 8 in. cage, or 3 birds per 12 in. cage."
5	1.1.2.2.(1)(b)	Change line 3 to read "forth in Tables V(a), (b), (c) and (d) for wood and the National Building Code, 1970 for steel and concrete".
9	1.1.4.1.(2), line 2	Change "O141-1965" to read "O141-1970".
9-18	1.1.4.2.	Delete (2) and (3) inclusive and Tables III to V(d) inclusive and replace with the following:

Table III
SPECIES GROUPS

Group	Species
A	Douglas Fir Western Larch
B	Pacific Coast Hemlock Fir (Amabilis and Grand only)
C	Pacific Coast Yellow Cedar Tamarack Jack Pine Eastern Hemlock
D	Balsam Fir Pine (Lodgepole and Ponderosa only) Spruce (all species) Alpine Fir
E	Western Red Cedar Red Pine Western White Pine Eastern White Pine
F	Poplar (Aspen, Large-tooth Aspen, and Balsam only)

(2)(a) All lumber assigned allowable unit stresses should be identified by the grade mark of, or certification of inspection issued by, an association or independent grading agency in accordance with the grade marking provisions of CSA O141-1970 Softwood Lumber. Sawn lumber should be graded in conformance with Table IV.
(b) Ungraded lumber should not be used in applications where the calculation of unit stresses is essential to the design.

Table IV
GRADING RULES FOR SAWN LUMBER

Species	Grading Rule
All Species	NLGA Standard Grading Rules for Canadian Lumber, published by The National Lumber Grades Authority, December, 1970, effective March, 1971.

Notes to Table IV

The NLGA Standard Grading Rules for Canadian Lumber incorporate the "National Grading Rule for Dimension Lumber", a uniform set of grade descriptions and other requirements for softwood dimension lumber that forms part of all softwood lumber grading rules in the United States. Thus all dimension lumber throughout Canada and the United States is graded to uniform requirements.

Recommended allowable unit stresses also apply to all corresponding grades in the 1971 editions of standard grading rules published by the West Coast Lumber Inspection Bureau, Western Wood Products Association, Northern Hardwood and Pine Manufacturers Association and Northeastern Lumber Manufacturers Association.

Grades should be specified by intended end use and size classification (e.g. light framing, joist and plank, beam and stringer, post and timber, plank decking), as well as species and grade. Designers are advised to check the availability of grade, species, and size of members required before specifying.

(3)(a) Structurally graded lumber may be assigned allowable unit stresses listed in Tables V(a), (b) and (c) except that in "load-sharing systems" all such values other than modulus of elasticity may be increased 10 per cent.
(b) Graded lumber used in high human occupancy farm buildings may be assigned allowable unit stresses for "load-sharing systems" provided the framing elements are spaced at 24 in. or less.
(c) Graded lumber used in low human occupancy farm buildings may be assigned allowable unit stresses for "load-sharing systems provided the framing elements are spaced at 48 in. or less."
("Load sharing system" means a construction composed of three or more essentially parallel members so arranged or connected such that excessive deflection in one of the members causes additional load transfer to adjacent members.)

Table V(a)
ALLOWABLE UNIT STRESSES FOR LIGHT FRAMING SIZES OF SAWN LUMBER CONFORMING TO THE NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, PSI
(Thickness: 2 to 4 in.; width: 2 to 4 in.*; conditions: dry service; load: normal duration.)

Species Group	Grade*	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longi-tudinal Shear	Parallel to Grain	Perpendi-cular to Grain		
A	Select Structural	2,200	90	1,600	460	1,250	1,930,000
	No. 1	1,850		1,250		1,100	1,930,000
	No. 2	1,500		1,000		900	1,740,000
	No. 3	850		600		500	1,540,000
	Construction	1,100		1,150		650	1,540,000
	Standard	600		950		360	1,540,000
	Utility	300		600		150	1,540,000
	Stud	850		600		500	1,540,000
B	Select Structural	1,600	75	1,300	235	950	1,620,000
	No. 1	1,400		1,050		800	1,620,000
	No. 2	1,150		800		650	1,460,000
	No. 3	600		500		350	1,300,000
	Construction	800		950		500	1,300,000
	Standard	450		750		250	1,300,000
	Utility	200		500		100	1,300,000
	Stud	600		500		350	1,300,000
C	Select Structural	1,900	85	1,350	335	1,100	1,400,000
	No. 1	1,650		1,050		950	1,400,000
	No. 2	1,350		850		800	1,260,000
	No. 3	750		500		450	1,120,000
	Construction	950		950		550	1,120,000
	Standard	550		800		300	1,120,000
	Utility	250		500		150	1,120,000
	Stud	750		500		450	1,120,000
D	Select Structural	1,500	60	1,150	245	900	1,350,000
	No. 1	1,300		900		750	1,350,000
	No. 2	1,050		700		600	1,220,000
	No. 3	600		450		350	1,080,000
	Construction	750		800		450	1,080,000
	Standard	450		650		250	1,080,000
	Utility	200		450		100	1,080,000
	Stud	600		450		350	1,080,000
E	Select Structural	1,400	65	1,000	235	850	1,210,000
	No. 1	1,200		800		700	1,210,000
	No. 2	1,000		650		600	1,080,000
	No. 3	550		400		300	970,000
	Construction	700		700		400	970,000
	Standard	400		600		250	970,000
	Utility	200		400		100	970,000
	Stud	550		400		300	970,000
F	Select Structural	1,500	60	850	180	900	1,250,000
	No. 1	1,300		700		750	1,250,000
	No. 2	1,050		550		600	1,130,000
	No. 3	600		350		350	1,000,000
	Construction	750		600		450	1,000,000
	Standard	450		500		250	1,000,000

Table V(a) — Continued

Species Group	Grade*	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longitudinal Shear	Parallel to Grain	Perpendicular to Grain		
	Utility	200	60	350	180	100	1,000,000
	Stud	600		350		350	1,000,000

*Size: Allowable unit stresses for Construction, Standard and Utility grades apply only to members 4 in. in nominal width.

Allowable unit stresses for Select Structural, No. 1, No. 2, No. 3 and Stud grades of 3 × 4 in., and 4 × 4 in. sizes shall be the tabulated values multiplied by the factors below:

	Extreme Fibre in Bending	Tension Parallel to Grain	Modulus of Elasticity	All Other Stresses
Select Structural	0.93	0.93	1.00	1.00
No. 1	0.62	0.62	0.80	1.00
No. 2	0.42	0.42	0.89	1.00
No. 3	0.35	0.35	1.00	1.00
Stud	0.35	0.35	1.00	1.00

Notes to Table V(a):

Allowable unit stresses for Appearance grade meeting the requirements of the authorities listed in Table IV shall be those listed for No. 1 grade, except that allowable unit stress in compression parallel to grain may be increased by 19 per cent.

Yellow Birch, Hard Maple, and Red and White Oak conforming to the grades in this Table have the same allowable unit stresses as the corresponding grades of Group A species.

An approximate value for modulus of rigidity may be estimated at 0.065 times the modulus of elasticity.

Table V(b)
ALLOWABLE UNIT STRESSES FOR JOIST AND PLANK SIZES OF SAWN LUMBER CONFORMING TO THE NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, PSI
(Thickness: 2 to 4 in.; width: 6 in. or more; conditions: dry service; load: normal duration.)

Species Group	Grade	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longitudinal Shear	Parallel to Grain	Perpendicular to Grain		
A	Select Structural	1,900	90	1,400	460	1,250	1,930,000
	No. 1	1,600		1,250		1,050	1,930,000
	No. 2	1,300		1,050		850	1,740,000
	No. 3	750		650		500	1,540,000
B	Select Structural	1,400	75	1,150	235	900	1,620,000
	No. 1	1,200		1,050		800	1,620,000
	No. 2	950		850		650	1,460,000
	No. 3	550		550		350	1,300,000
C	Select Structural	1,650	85	1,200	335	1,100	1,400,000
	No. 1	1,400		1,050		950	1,400,000
	No. 2	1,150		900		750	1,260,000
	No. 3	650		550		450	1,120,000
D	Select Structural	1,300	60	1,000	245	850	1,350,000
	No. 1	1,100		900		750	1,350,000
	No. 2	900		750		600	1,220,000
	No. 3	500		500		350	1,080,000

Table V(b) — Continued

Species Group	Grade*	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longitudinal Shear	Parallel to Grain	Perpendicular to Grain		
E	Select Structural	1,250	65	900	235	800	1,210,000
	No. 1	1,050		800		700	1,210,000
	No. 2	850		650		550	1,080,000
	No. 3	500		400		300	970,000
F	Select Structural	1,300	60	750	180	850	1,250,000
	No. 1	1,100		700		750	1,250,000
	No. 2	900		550		600	1,130,000
	No. 3	500		350		350	1,000,000

Notes to Table V(b)

Allowable unit stresses for Appearance grade meeting the requirements of the authorities listed in Table IV shall be those listed for No. 1 grade, except that allowable unit stress in compression parallel to grain may be increased by 19 per cent.

Yellow Birch, Hard Maple, and Red and White Oak conforming to the grades in this Table have the same allowable unit stresses as the corresponding grades of Group A species.

An approximate value for modulus of rigidity may be estimated at 0.065 times the modulus of elasticity.

Table V(c)
ALLOWABLE UNIT STRESSES FOR STRUCTURALLY GRADED SAWN TIMBER, CONFORMING TO THE NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, PSI
(Minimum dimension: 5 in.; conditions: dry service; load: normal duration.)

Species Group	Grade	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longitudinal Shear	Parallel to Grain	Perpendicular to Grain		
(a) BEAMS AND STRINGERS* — Depth more than 2 in. greater than thickness							
A	Select Structural	1,700	125	1,100	460	1,000	1,720,000
	No. 1 Structural	1,350	125	900	460	700	1,720,000
B	Select Structural	1,250	100	900	235	750	1,450,000
	No. 1 Structural	1,000	100	750	235	500	1,450,000
C	Select Structural	1,500	120	950	335	850	1,250,000
	No. 1 Structural	1,200	120	800	335	600	1,250,000
D	Select Structural	1,150	85	800	245	700	1,210,000
	No. 1 Structural	950	85	650	245	500	1,210,000
E	Select Structural	1,100	95	700	235	650	1,120,000
	No. 1 Structural	900	95	600	235	450	1,120,000
F	Select Structural	1,150	85	600	180	700	1,160,000
	No. 1 Structural	950	85	500	180	500	1,160,000
(b) POSTS AND TIMBERS — Depth not more than 2 in. greater than thickness							
A	Select Structural	1,550	125	1,200	460	1,050	1,720,000
	No. 1 Structural	1,300	85	1,050	460	850	1,720,000

Table V(c) — Continued

Species Group	Grade	Bending		Compression		Tension Parallel to Grain	Modulus of Elasticity
		Stress at Extreme Fibre	Longitudinal Shear	Parallel to Grain	Perpendicular to Grain		
B	Select Structural	1,150	100	950	235	800	1,450,000
	No. 1 Structural	950	70	850	235	650	1,450,000
C	Select Structural	1,400	120	1,000	335	900	1,250,000
	No. 1 Structural	1,100	80	850	335	750	1,250,000
D	Select Structural	1,100	85	850	245	750	1,210,000
	No. 1 Structural	900	60	750	245	600	1,210,000
E	Select Structural	1,050	95	750	235	700	1,120,000
	No. 1 Structural	850	65	650	235	550	1,120,000
F	Select Structural	1,100	85	650	180	750	1,160,000
	No. 1 Structural	900	60	550	180	600	1,160,000

* Allowable unit stresses in tension parallel to grain for "beam and stringer" grades may be increased by 14 per cent when grade restrictions applicable to the middle third of the piece are applied over the full length of the piece.

Notes to Table V(c):

Bending stresses for "beams and stringers" apply only when a member is loaded on the narrow face.

"Posts and timbers" graded to "beam and stringer" rules may be assigned beam and stringer stresses.

Yellow Birch, Hard Maple, and Red and White Oak have the same allowable unit stresses as Group A for Select Structural or No. 1 Structural grades respectively.

An approximate value for modulus of rigidity may be estimated as 0.065 times the modulus of elasticity.

With sawn members thicker than 4 in., which season slowly, care should be exercised to avoid overloading in compression before appreciable seasoning of the outer fibres has taken place, otherwise compression stresses for wet service conditions shall be used.

All grades listed in Table V(c) are graded for continuity except for all grades of beam and stringer size class.

Table V(d)
ALLOWABLE UNIT STRESSES FOR PLANK DECKING, CONFORMING TO THE NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER, PSI
(Thickness: 2 to 4 in.; width: 6 in. or more; conditions: dry service; load: normal duration.)

Species Group	Grade	Bending Stress at Extreme Fibre	Compression Perpendicular to Grain	Modulus of Elasticity
A	Select Commercial	1,800 1,550	460	1,930,000 1,740,000
B	Select Commercial	1,350 1,150	235	1,620,000 1,460,000
C	Select Commercial	1,600 1,350	335	1,400,000 1,260,000
D	Select Commercial	1,250 1,050	245	1,350,000 1,220,000
E	Select Commercial	1,200 1,000	235	1,210,000 1,080,000

Notes to Table V(d)
Bending stresses apply only when decking is loaded on the wide face.
An approximate value for modulus of rigidity may be estimated at 0.065 times the modulus of elasticity.

Page	Code Requirement	Revision
19	1.1.4.3.	Add new sentence as follows: "(3). Where the design of structural assemblies for high human occupancy is based upon load tests, representative sample assemblies selected at random should be capable of supporting a) 100 per cent of design dead and live loads for 1 hr without exceeding deflection limitations where applicable, and b) 100 per cent of design dead load plus 267 per cent of design live load for 24 hr without failure."
22	1.1.6.7. (6)(c)	Change "Suggested Specifications for Construction of Precast Concrete Stave Farm Silos" to read "Binwall Design and Construction". Delete "Concrete Bins and Silos".
28	1.2.3.1.	Delete (2) in its entirety and replace by the following: "(2) The Power Supply Authority and Electrical Inspection Authority should be consulted for requirements and regulations governing service and metering equipment installation. Most Power Supply Authorities will provide drawings and other assistance." Add new sentence as follows: "(3) All electrical installations shall meet the requirements of the appropriate provincial or municipal statutes, or in the absence of such statutes the requirements of the

Page	Code Requirement	Revision
		Canadian Electrical Code, CSA C22.1-1972 shall apply. An application for inspection by the Inspection Authority Having Jurisdiction is required for all electrical installations before work is commenced."
30	1.2.3.13.	After 1.2.3.12.(1) add new section: "Wiring - (1) All wiring materials should be of the type approved by the Power Supply Authority requirements or the Canadian Electrical Code, CSA C22.1-1972, for the anticipated service conditions. (2) In locations where rodents may damage the insulation, wiring should be surface mounted or protected by rigid PVC conduit or other suitable approved material. (3) Where conductors penetrate a vapour barrier, special precautions should be taken to prevent breathing and subsequent condensation. See Canadian Electrical Code, Part I, rules 22-014 and 22-016 or the overriding Electrical Inspection Authority Regulation."
33	1.3.2.1.	Add new sentence as follows: "(5)(i) Livestock enterprises should be established an adequate distance from neighbouring residences. Local authorities should be consulted. (ii) New neighbouring residences should be established an adequate distance from existing livestock enterprises. Local authorities should be consulted."
50	2.1.1.7.(3)(a)	Change lines 3 and 4 to read as follows: "0-14 weeks 2 sq ft each Over 14 weeks 3 sq ft each".
57	Table XXIII, column 1, line 4	After "calves" and before "6 wks." add "over".
74	Table XXVII, columns 2 and 3, line 1	Change "0.06 and 0.085" to read "0.19 and 0.19".
80	Table XXXII	In the title after "acres/animal" add "*****". Add the following footnote to Table XXXII "***** Based on the animal numbers at a given time and year round operation."
80	2.2.6.6.	Add new clause as follows: "Oxidation Ditches for Swine-(1) Oxidation ditches may be used for swine waste processing in the building where local conditions require a high degree of odour control. (2) Oxidation ditches should be designed to remove the anticipated five-day Biochemical Oxygen Demand of the waste."
88	2.3.5.1. (1), line 3	Change "O80-1966" to read "O80-1970".
89	2.3.5.1.(3), line 2	Change "O80-1966" to read "O80-1970".
89	2.3.5.1.(5), line 2	Change "O80-1966" to read "O80-1970".
90	List of Agencies Issuing Standards and Grading Rules	Delete all agencies listed under "Grading rules referred to in this document can be obtained direct from" and replace with the following: "National Lumber Grades Authority, 1055 West Hastings St., Vancouver 1, B.C."

Page	Code Requirement	Revision
91	Line 22	Between "Berglund" and "Bond" add "Binwall Design and Construction, Committee 313, American Concrete Institute, July 1968."
91	Line 33	Omit reference "Edgar, A.D. 'Pressure on walls of storage bins'."
92	Lines 51 and 52	Delete reference "Suggested Specification, etc." in its entirety.
92	Line 51	Between "Sainsbury" and "Truscott" add reference "Schaper, Lewis A. and Joseph F. Herrick, Jr. 1968. Lateral pressures on walls of potato storage bins. ARS 52-32, Agricultural Research Services, United States Department of Agriculture."
104	Figure 2-A and Notes	Delete in their entirety and replace by the following:

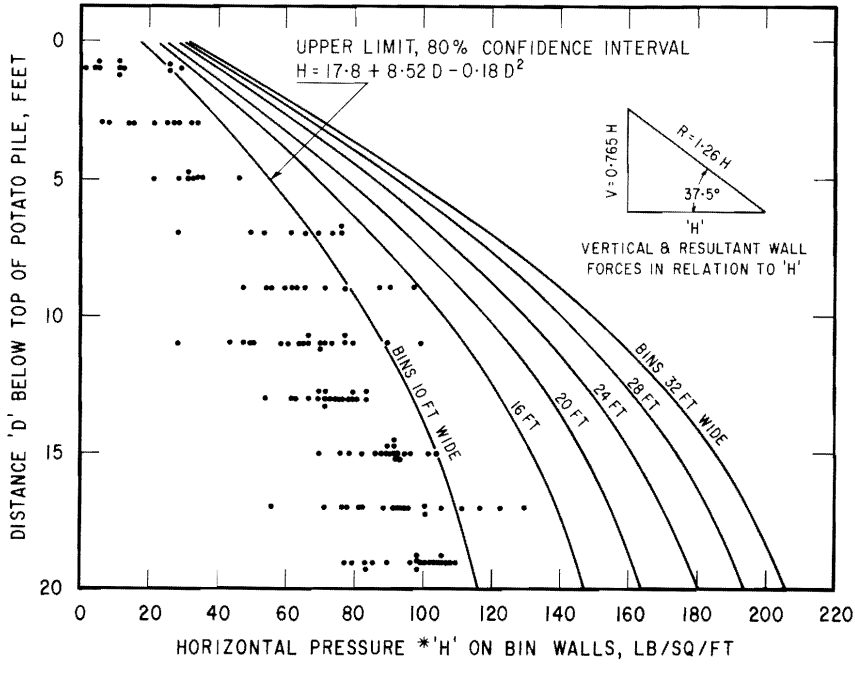

FIGURE 2-A LOADS IMPOSED BY STORED POTATOES ON BIN WALLS

Notes to Figure 2-A:

*Results were obtained in a rectangular bin 9 ft. 4 in. by 17 ft. long, with potatoes piled initially to 20 ft. deep. Pressure measurements were taken at the 9 ft. 4 in. walls (from Shaper and Herrick, 1968; see Bibliography).

Page	Code Requirement	Revision
139	Table I-III, column 4	Delete detail in its entirety and replace by: Total Heat** (btu/animal - hr) 646 1360 1630 1790 1930 1970
	Table I-III, column 6	Delete detail in its entirety and replace by: Total Heat** (btu/animal - hr) 584 1250 1490 1690
182-4	Table M-I, M-II, M-III	In line 2 of Footnote* delete "0.0038" and replace with "0.0019". In line 3 of Footnote* delete "0.0044" and "0.0060" and replace with "0.0022" and "0.0030" respectively.
204	Figure 1-O	Replace present Figure 1-O with the following:

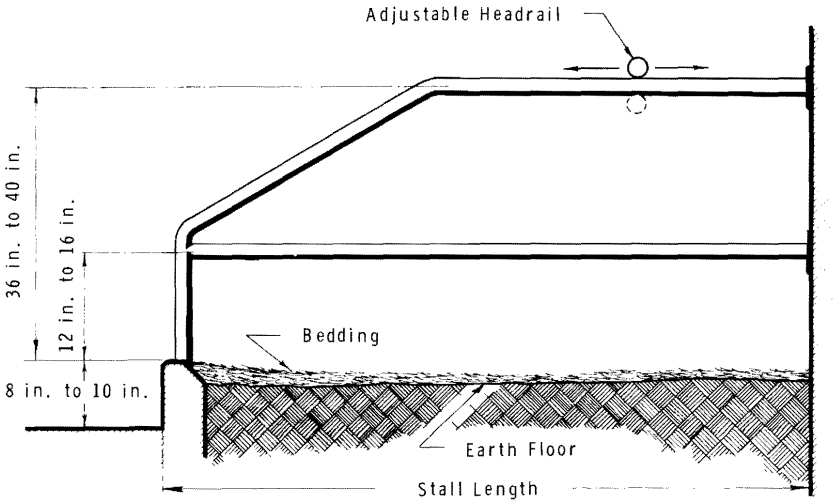

FIGURE 1-O
FREE STALL WITH EARTH FLOOR