

**CITY OF NEW YORK
DEPARTMENT OF BUILDINGS**

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

**Richard C. Visconti, R.A., Acting Commissioner
MEA 101-00-E
Report of Material and Equipment Acceptance Division**

**Manufacturer-Louisiana-Pacific Corporation, 111 S. W. Fifth Ave., Portland, OR 97204
Trade Name – LPI JOISTS, Series 20/32.**

Product - Wooden I-Joists, with flanges made of kiln-dried, solid sawn lumber and webs of oriented strand board panels.

Pertinent Code Sections - Article 7 Wood, Section 27-617, Reference Standards RS10, Section 27-133 Alternate or Equivalent Material.

Tests – Flange Tension Tests, EI and Moment Capacity Tests, Shear Capacity Tests, Multiple Span Bearing Capacity Tests, Minimum End Bearing Capacity Tests, Round Web Opening Shear Capacity Tests, and Rectangular Web Opening Shear Capacity Tests.

In-house testing of LPI 20/32 Series I-Joists was performed by Louisiana-Pacific Corporation and was witnessed by a representative of PFS Corporation. Tables and drawings were sealed by Daniel M. McGee, P.E. License No. 04203 New York State.

Test Reports – Test Reports relating to LPI Joists, Series 20/32 are as follows:

- **LPI 32 Series I-Joists: Tension, EI, Bending, Moment, Deflection, Creep, K-factor, MOE and Web Hole Tests.**
- **LPI 32 Series I-Joists: Single and Multiple Span Shear.**
- **LPI 20 Series I-Joist General Specifications: Test Reports, Sample Calculations and Data.**
- **Qualification Test Data for LPI 20 Series – 14” Depth.**
- **LPI 32 Series I-Joists Quality Assurance Manual, prepared by Louisiana Pacific Corporation, dated June 1999, signed by representatives of Louisiana-Pacific Corporation, Les Chantiers de Chibougamau Limited, and the third-party inspection agency, PFS Corporation containing criteria for independent inspections, in-house quality assurance, periodic reevaluation of production, installation and identification of the LPI 32 Series Joists.**

- LPI 20 Series I-Joists Quality Assurance Manual, prepared by Louisiana Pacific Corporation, dated January 2000, signed by representatives of Louisiana-Pacific Corporation, Les Chantiers de Chibougamau Limited, and the third-party inspection agency, PFS Corporation containing criteria for independent inspections, in-house quality assurance, periodic reevaluation of production, installation and identification of the LPI 20 Series Joists.
- The tables were sealed by Daniel Michael McGee, New York State Licensed Professional Engineer – License No. 04203.

Description – LPI Joists are manufactured with kiln-dried flanges of solid sawn lumber. LPI 20 Series I-Joist flanges finger-jointed number 2 and better Spruce-Pine-Fir. LPI 32 Series I-Joists are machine stress rated Spruce-Pine-Fir, Douglas Fir-Larch, Hemlock-Fir, Black Spruce, Southern Pine or DSS visual grade Southern Pine Lumber. LPI 32 Series I-Joist flanges are finger-jointed 2100F_b – 1.8E MSR lumber.

The flange sections of LPI 20/32 Series I-Joists are machine formed to a size of 1 ½ inches (38 mm) deep and 2 ½ inches (64 mm) wide with a continuous tapered groove centered along the wide face to accept the web material.

The web of the LPI Joists, Series 20 and 32 are 3/8 inch thick oriented strand board (OSB) that meets the requirements of the United States Department of Commerce Products Standard PS 2-92, “Performance Standard for Wood-Based Structural Use Panels.”

The adhesive used for the finger joints, web-to-flange tongue and groove or “vee” joint is a phenol resorcinol resin adhesive that complies with ASTM D2559-92 and ASTM D5055.

All LPI Joists Series 20/32 are manufactured under a strict Quality Assurance Programs outlined in LPI 20 Series Joists Quality Assurance Manual, dated January 2000 and LPI 32 Series Quality Assurance Manual, dated June 1999. PFS Corporation has been engaged to perform third party inspection of equipment and finished product in accordance with the Quality Assurance Manuals.

All LPI 20 and LPI 32 Series I-joists shall be identified by means of a stamp indicating the manufacturer's name, joist series and third-party inspection agency logo.

The LPI 20 and LPI 32 Series I-joists shall have characteristics as described in the following tables:

TABLE 1 - DESIGN PROPERTIES

I-JOIST DEPTH (INCHES)		EI (x10 ⁶) (IN ² - LBS)	K (x10 ⁶) LBS	MAXIMUM RESISTIVE MOMENT (FT-LBS)
LPI 32	9-1/2	243	2.56	3195
LPI 32	11-7/8	406	3.20	4275
LPI 32	14	589	3.75	5255
LPI 32	16	791	4.30	6180
LPI 20	9-1/2	176	2.56	2600
LPI 20	11 7/8	300	3.20	2600
LPI 20	14	441	3.75	4200

Notes:

- Uniform Load deflection may be approximated using the following formula:
 W = uniform load in pounds per lineal inch
 L = clear span in inches

$$\Delta = \frac{SWL^4}{384EI} + \frac{WL^2}{K} \quad \text{where:} \quad \begin{array}{l} K = \text{value from table above} \\ EI = \text{value from table above} \end{array}$$

- SI units conversion: 1 in. = 25.4 mm; 1 ft. = 304.8 mm; 1PLF = 14.6 N/m; 1lbf = 4.5 N.

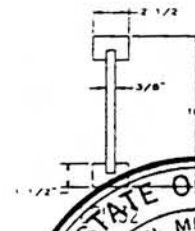
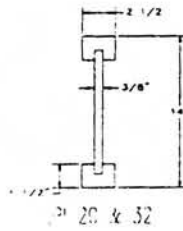
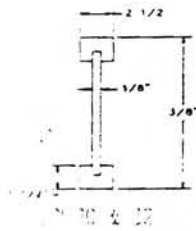
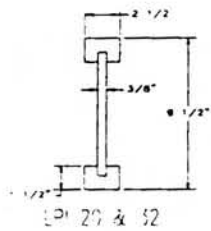
FIGURE 1 - DIMENSIONS AND WEIGHT PER FOOT

2.5 PLF

2.8 PLF

3.0 PLF

3.2 PLF



NOTE: ALL DIMENSIONS ARE IN INCHES.
 1" = 25.4 MM



TABLE 2 - LPI 20 DESIGN PROPERTIES (continued)

JOIST DEPTH (inches)	FLANGE WIDTH (inches)	Minimum Bearing (inches)		Maximum Allowable Reaction W/O STIFF. (lbs)		Maximum Allowable Reaction W/STIFF. (lbs)	
		At End	Interior	At End	Interior	At End	Interior
9.50	2.50	1.50	3.50	950	2000	1230	2025
11.875	2.50	1.50	3.50	1025	2350	1350	2525
14	2.50	1.50	3.50	1190	2750	1620	3490

For SI unit conversion: 1 inch = 25.4 mm, 1 lb = 0.454 kg, 1 plf = 14.6 N/m

TABLE 3 - LPI 32 DESIGN PROPERTIES (continued)

JOIST DEPTH (inches)	FLANGE WIDTH (inches)	Minimum Bearing (inches)		Maximum Allowable Reaction W/O STIFF. (lbs)		Maximum Allowable Reaction W/STIFF. (lbs)	
		At End	Interior	At End	Interior	At End	Interior
9.50	2.50	1.50	3.50	950	2000	1250	2025
11.875	2.50	1.50	3.50	1025	2350	1350	2525
14	2.50	1.50	3.50	1100	2625	1350	3350
16	2.50	1.50	3.50	1200	2850	1800	

For SI unit conversion: 1 inch = 25.4 mm, 1 lb = 0.454 kg, 1 plf = 14.6 N/m

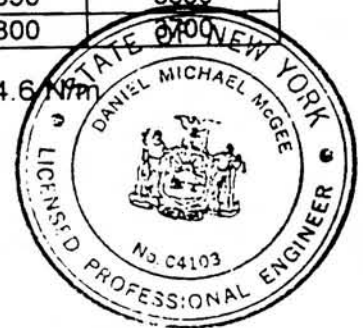
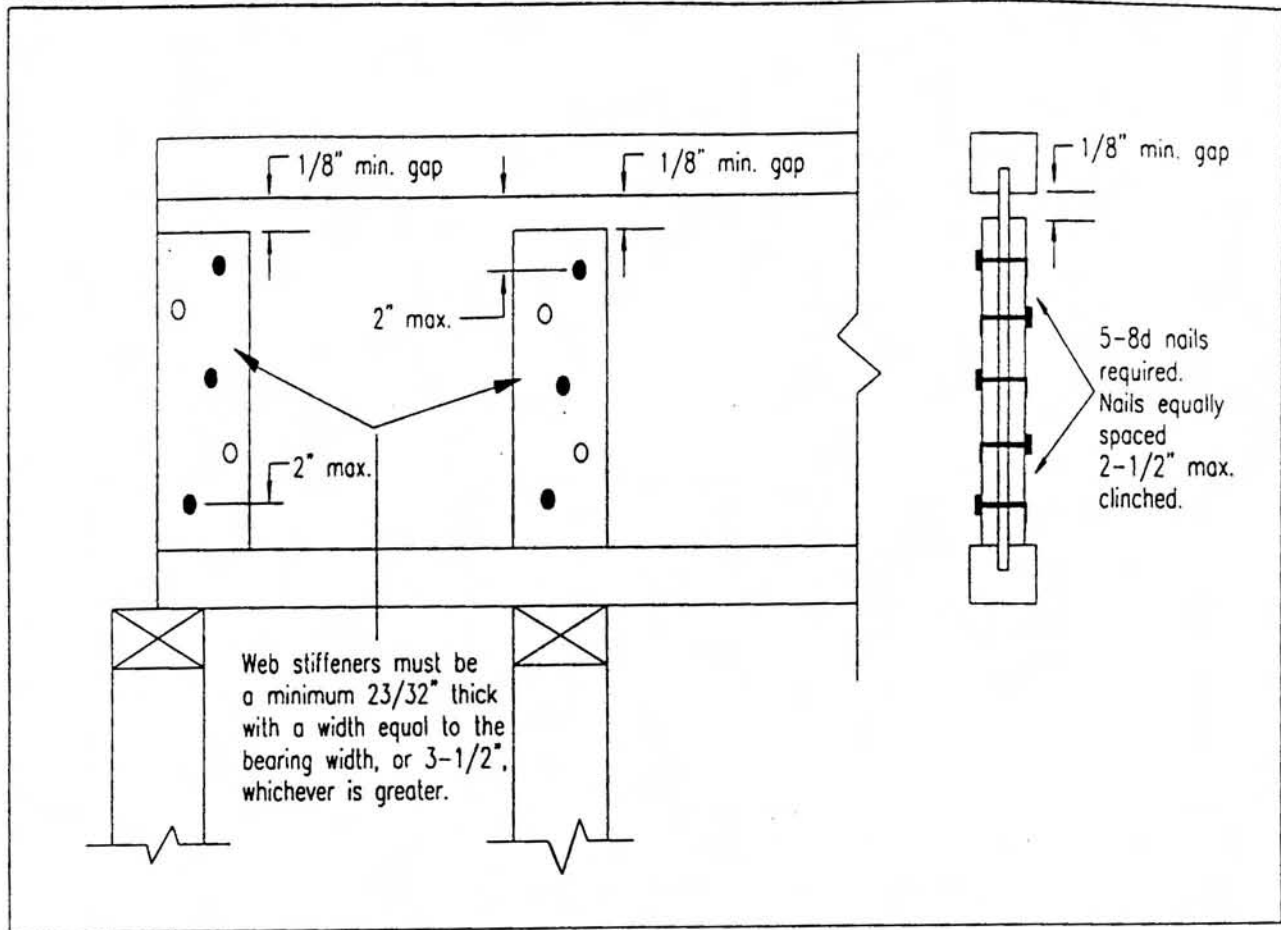


FIGURE 3 - WEB STIFFENER DETAILS



SI Units Conversion: 1 in. = 25.4 mm; 1 ft. = 304.8 mm; 1 lbf = 4.5 N.

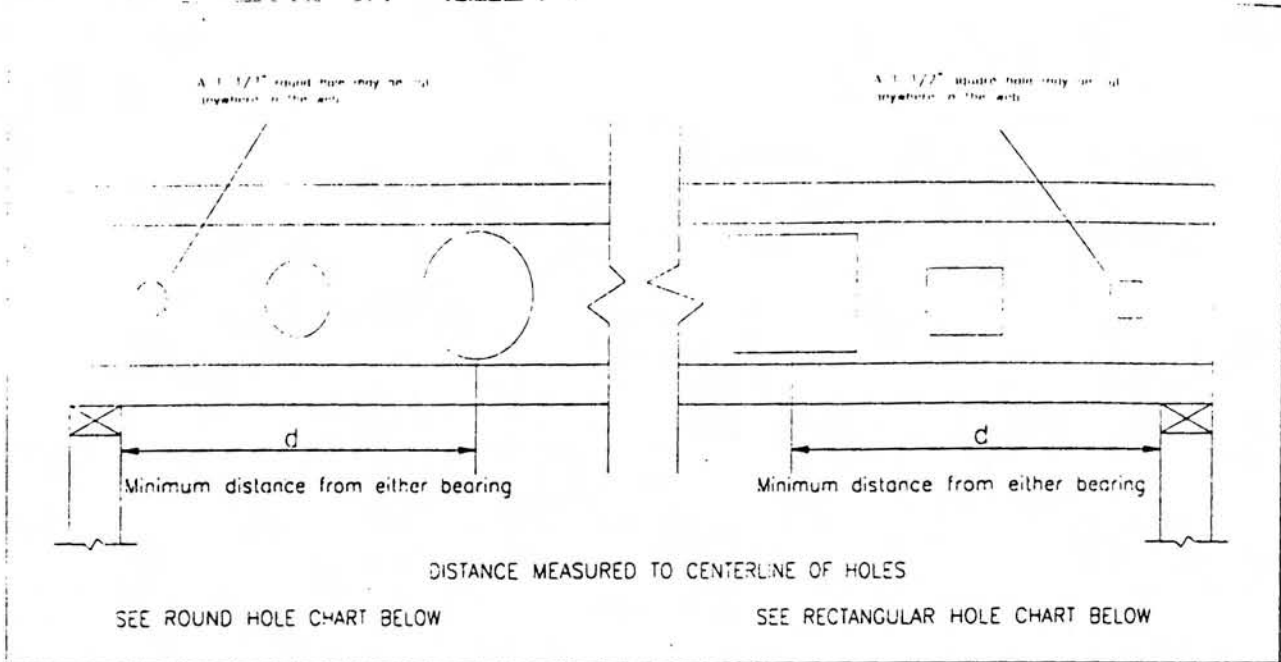
NOTES:

1. Web stiffeners are required at birds-mouth cut locations, at sloped hanger locations, and for lateral support of the joist when used with hangers if the sides of the hanger do not laterally support the LPI 20 or LPI 32 I-joist.
2. Web stiffeners must have a minimum 1/8" gap at the top flange, and be tight and bear fully on the bottom flange (see drawing above).
3. APA rated OSB (or equal) stiffener is to be a minimum 23/32" thick with a minimum width equal to the bearing width, or 3-1/2", whichever is greater.
4. Nail to LPI 20 and LPI 32 I-joist with 5-8d nails, equally spaced and staggered (see drawing above).

STIFFENER HEIGHT	JOIST DEPTH		
	9-1/2"	11-7/8"	14"
	6-3/8"	8-3/4"	10-7/8"



FIGURE 4 - LPI 20 WEB HOLE DETAILS
WARNING: Do Not Cut or Notch Flanges



ROUND HOLES

JOIST DEPTH	HOLE DIAMETER									
	2"	3"	4"	5"	5.5"	6"	7"	8"	9"	10"
9-1/2"	1'	2'	2'	2'-7"	3'	-	-	-	-	-
11-7/8"	1'	2'	2'-6"	3'	3'-6"	4'	4'-6"	5'	-	-
14"	1'	2'	3'	4'	5'	5'	5'-6"	6'-6"	7'	8'

Minimum distance between bearing and center of hole (d)

NOTE: If more than one hole is to be cut in the web, the length of the uncut web between the holes must be twice the diameter of the largest adjacent hole.

RECTANGULAR HOLES

JOIST DEPTH	LONGEST HOLE DIMENSION									
	2"	3"	4"	5"	5.5"	6"	7"	8"	9"	10"
9-1/2"	3'-2"	3'-8"	4'	4'-5"	4'-9"	-	-	-	-	-
11-7/8"	2'-5"	3'	3'-9"	4'-5"	4'-9"	5'-3"	6'	6'-7"	-	-
14"	1'	2'	3'	4'	5'-6"	7'	8'	9'	10'	11'

Minimum distance between bearing and center of hole (d)

NOTE: If more than one hole is to be cut in the web, the length of the uncut web between the holes must be twice the length of the longest dimension of the longest adjacent hole.

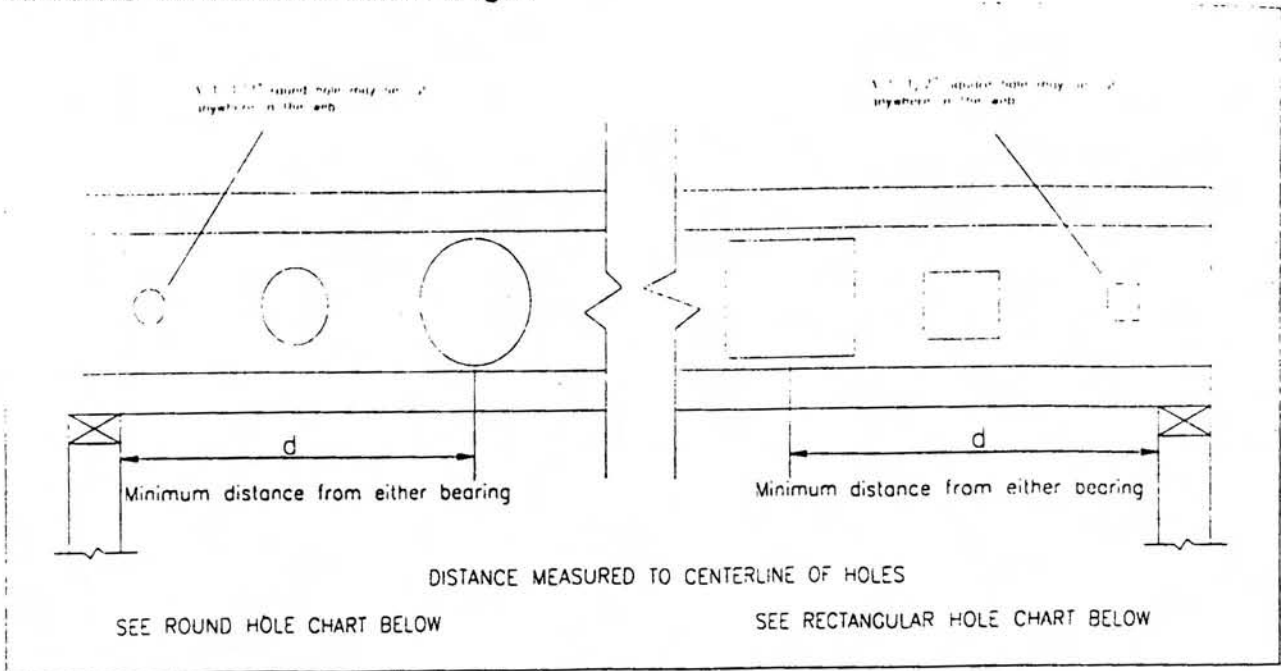
SI Units Conversion: 1 in. = 25.4 mm; 1 ft. = 304.8 mm.

GENERAL NOTES:

1. LPI 20 I-joists are manufactured with 1-1/2" perforated "knockouts" in the web at approximately 48" on center.
2. Hole locations and sizes based on uniformly loaded LPI 20 I-joists and may be used with any of the tables in this report.
3. Maximum of three cut holes per span.
4. Cut holes carefully. DO NOT overcut.
5. Holes must be centered between flanges.



FIGURE 5 - LPI 32 WEB HOLE DETAILS
WARNING: Do Not Cut or Notch Flanges



ROUND HOLES

JOIST DEPTH	HOLE DIAMETER											
	2"	3"	4"	5"	5.5"	6"	7"	8"	9"	10"	11"	12"
9-1/2"	1'	2'	3'	4'	5'	-	-	-	-	-	-	-
11-7/8"	1'	2'	3'	4'	5'	5'	5'	6'	-	-	-	-
14"	1'	2'	3'	4'	5'	5'	5.5'	6.5'	7'	8'	-	-
16"	2'	3'	4'	5'	5'	6'	6'	7'	8'	8'	8'	9'

Minimum distance between bearing and center of hole (d)

NOTE: If more than one hole is to be cut in the web, the length of the uncut web between the holes must be twice the diameter of the largest adjacent hole.

RECTANGULAR HOLES

JOIST DEPTH	LONGEST HOLE DIMENSION											
	2"	3"	4"	5"	5.5"	6"	7"	8"	9"	10"	11"	12"
9-1/2"	1'	2'	3'	4'	5'	-	-	-	-	-	-	-
11-7/8"	1'	2'	3'	4'	5'	7'	8'	9'	-	-	-	-
14"	1'	2'	3'	4'	5.5'	7'	8'	9'	10'	11'	-	-
16"	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	11'	11'

Minimum distance between bearing and center of hole (d)

NOTE: If more than one hole is to be cut in the web, the length of the uncut web between the holes must be twice the length of the longest dimension of the longest adjacent hole.

SI Units Conversion: 1 in. = 25.4 mm; 1 ft. = 304.8 mm.

GENERAL NOTES:

- LPI 32 I-joists are manufactured with 1-1/2 inch perforated "knockouts" in the web at approximately 18" on center.
- Hole locations and sizes based on uniformly loaded LPI 32 I-joists and may be used with any of the tables in this report.
- Maximum of three cut holes per span.
- Cut holes carefully. DO NOT overcut.
- Holes must be centered between flanges.



Recommendations – that the above Wood I-Joists be accepted on condition that all uses, locations and installation shall comply with the applicable requirements of the New York City Building Code and Technical Policy and Procedure Notice #8, 1992 dated August 19, 1992 (attached) and on further condition that:

- 1. Structure designs using wood joists shall conform to the manufacturer's specifications except that appropriate design load(s), deflection limitation(s) and other performance standards of the New York City Building Code shall apply.**
- 2. Glue used shall not delaminate during a fire.**
- 3. Wood I-Joists shall be used in locations that will ultimately be protected from the weather and be marked "Exposure I", indicating the exposure durability as defined in PS 2-92, "Performance Standards for Wood-Based Structural Use Panels."**
- 4. When stored out of doors or exposed to wet weather conditions during construction, be inspected by the user for flange-web separation, swelling or warping and replaced if so damaged.**
- 5. The size of any cutouts in the web of the joist shall be exceed the manufacturer's recommendations.**
- 6. Firestopping shall be provided between the ceiling and the floor or roof above and shall be divided into approximately equal areas not greater than 500 square feet.**
- 7. The cutting of openings for ducts, pipes, conduits, etc. in wood I-Joists shall be subject to a controlled inspection.**
- 8. The building permit applicant shall notify the Fire Department of the proposed installation of wood I-Joists prior to the Building Department issuance of a construction permit. Evidence of such notification shall be a certifying statement submitted on Form TR-1, Technical Report, reading as follows:**

I hereby state that I have mailed a copy of this statement to the Fire Department, Bureau of Fire Prevention, Technology Management Unit, as notification of the proposed installation of wood I-Joists at this location.

This statement shall be placed on the reverse side of the form in the lower right-hand box.

The copy of the completed Form TR-1 shall be mailed to the new address at:

**Chief-In-Charge of the Bureau of Fire Prevention
Fire Department
Bureau of Fire Prevention
Technology Management Unit
9 MetroTech Center
Brooklyn, New York 11201-3857**

All shipments and deliveries of such material shall be provided with a permanent marking suitably placed, certifying that the materials shipped or delivered is equivalent to those tested and accepted for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance May 16, 2000
Examined by Mark J. Kelly



ISSUANCE # 367

DEPARTMENT OF BUILDINGS

EXECUTIVE OFFICES
60 HUDSON STREET, NEW YORK, N.Y. 10013

RICHARD C. VISCONTI, Commissioner
312-8100

RICHARD C. VISCONTI, A.I.A.
Assistant Commissioner
Technical Affairs

TECHNICAL
POLICY AND PROCEDURE NOTICE # 8/92

TO: Distribution
FROM: Richard C. Visconti, A.I.A. *Richard Visconti*
DATE: August 19, 1992
SUBJECT: Laminated Wood "I" Beams

PURPOSE: To interpret the requirements of the Administrative Code, Sections 27-617 and 27-620, pertaining to firestopping requirements per RS 10-8 and Inspection of Methods of Construction per Table 10-2 for laminated wood "I" beams used in fire resistance rated floor/roof-ceiling assemblies.

To establish a new administrative procedure for applicant notification to the Fire Department of proposed use of laminated wood "I" beams.

SPECIFICS:

1. Firestopping

Reference Standard RS 10-8, Section 9.2.1 - General Requirements for Firestopping states that, "the space between the ceiling and the floor or roof above shall be divided by providing firestopping where ceilings are suspended below solid joists or suspended from or attached directly to the bottom of open wood floor trusses in buildings of combustible construction."

The Department now interprets the requirement to comply with the firestopping provisions of Section 9.2.1 et seq. to include laminated wood "I" beam assemblies. Therefore, the space between the ceiling and the floor or roof above shall be divided into approximately equal areas not greater than 500 square feet.

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Firestopping is subject to controlled inspection pursuant to Section 27-345.

2. Inspection of Methods of Construction

Table 10-2 - Operations on Structural Elements that shall be Subject to Controlled Inspection, lists the "Fabrication of glue-laminated assemblies and of plywood components."

The Department now interprets the requirement to comply with the controlled inspection provision of Table 10-2 to include laminated wood "I" beams. Therefore, the cutting of openings for ducts, pipes, conduit, etc. in laminated wood "I" beams shall be considered fabrication and, therefore, subject to controlled inspection.

3. Notification

The applicant shall be required to notify the Fire Department of the proposed installation of laminated wood "I" beams prior to the Department issuing a construction permit. Evidence of such notification shall be a certifying statement submitted on Form TR-1, Technical Report, reading as follows:

I hereby state that I have mailed a copy of this statement to the Fire Department, Bureau of Fire Prevention, Technology Management Unit, as notification of the proposed installation of laminated wood "I" beams at this location.

This statement shall be placed on the reverse side of the form in the lower right-hand box.

The copy of the completed Form TR-1 shall be mailed to:

Chief-in-Charge of the Bureau of Fire Prevention
Fire Department
Bureau of Fire Prevention
Technology Management Unit
250 Livingston Street
Brooklyn, NY 11201-5884

cc: Chief John Hodgins