EXHIBIT B

ARCHITECTURAL DIMENSIONS
300 Frank H. Ogawa Plaza
Suite 375
Oakland, CA 94612
www.archdim.com
James M. Heilbronner
Architect C 11531

July 18, 2014

Mr. Lukas Quach, Senior Plan Check Engineer
Building Department
City of Burbank
150 North Third Street
Burbank, CA 91502

Re: Hilton Garden Inn
401 S. San Fernando Blvd
Burbank, CA 91502

Subject: **Alternative Materials & Methods Request for File # 12-0008142 – 2-Hour Continuity**

Dear Lukas,

We are requesting an approval for an Alternative Materials and Method of construction approval for the above referenced project as follows:

SUBJECT OF ALTERNATIVE MATERIALS AND METHODS REQUEST

Type 3A buildings are required to have 2- hour exterior bearing walls per CBC Table 601. The fire rating is understood to be maintained for the entire height of the exterior wall.

ISSUE

The structural requirements and framing practices associated with platform framing do not allow for a complete separation of the wall assembly from the floor/ceiling/roof assembly at the intersection of the 2-hour rated exterior wall and the 1-hour rated floor/ceiling/roof assemblies. There will be some degree of roof/floor framing members which penetrate or disrupt the interior membrane of the wall assembly.

CODE REQUIREMENT

IBC Section 705.6 requires sufficient structural stability for the assembly to remain in place for the duration of time required for the fire resistance assembly.

ALTERNATIVE PROPOSED

A. Provide specific details and modifications to address locations. Please reference the attached exhibits: A, B, C, D, E, F and G.

B. Plywood Decking: At the roof and floors the plywood decking breaks the interior gyp board membrane and extends into the Wall Assembly. Proposed alternative is to install Fire treated plywood (pressure treated method) at these locations. See Exhibits C, D, E, F and G.

C. Floor and Roof Trusses: At the roof and floors, the vertical end webs and as well as the end portions of the top and bottom cords of the truss extend into the exterior walls. Proposed

alternative is to field treat the wood members so as to maintain the strength of the structural components. See Exhibits A, C, D, E, F and G. Fire treatment shall be as follows:

a) Apply Flame Stop II fire retardant, a topical (surface applied) product to wood products to achieve the fire protection required. Flame Stop II does not alter the structural integrity of the wood lumber, and after application achieves a Class A rating with a Flame Spread of 25 and Smoke Developed rating of 25, which is considered equivalent to fire retardant lumber.

b) Installation of this type of fire-retardant treatment will be monitored & tested by a certified testing company. Inspection service protocols are attached as Exhibit H.

D. Floor Framing members: At wood framed floors, due to structural requirements, the ledger is required to be attached to wall studs, preventing the gypsum board from being installed behind the ledger: Proposed alternative is to have the ledger be fire retardant framing by the pressure treated method. The ledger is further protected by being enclosed with-in the 1-hour rated floor/ceiling assembly. See Exhibit B.

JUSTIFICATIONS

CBC Section 602.3 Type III states that this construction type is one "in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code".

Flame Stop II is a 30 minute-rated retardant that achieves a flame spread of 25 and a Smoke Developed coefficient of 25 with 1 coat, per ASTM E84. It does not alter the structural integrity as pressure treatment does, and meets the intent of the code requirement. See attached product information.

The proposed construction details provide equivalent protection of the exterior wall assembly. The truss blocking and beams in the walls transfer all the vertical gravity loads of the exterior stud walls. The floor trusses do not carry any of the exterior wall loads. As such they can be considered as bracing members and per 705.6 need only be protected as required for the floor ceiling assembly when outside the plan of the exterior wall. Penetrations at exterior wall assemblies is not discussed in the code, in fact Section 713.3 specifically excludes Exterior Wall Assemblies. Based on this it is our opinion that the use of fire retardant materials, gypsum board and fire caulking as indicated on the attached exhibits meets the intent of the code to provide the required protection of the exterior wall at these specific locations.

Sincerely,

ARCHITECTURAL DIMENSIONS

Antonio Robles, Architect

Enclosures
cc: OT094
Mario Osuna, City of Burbank Building Department

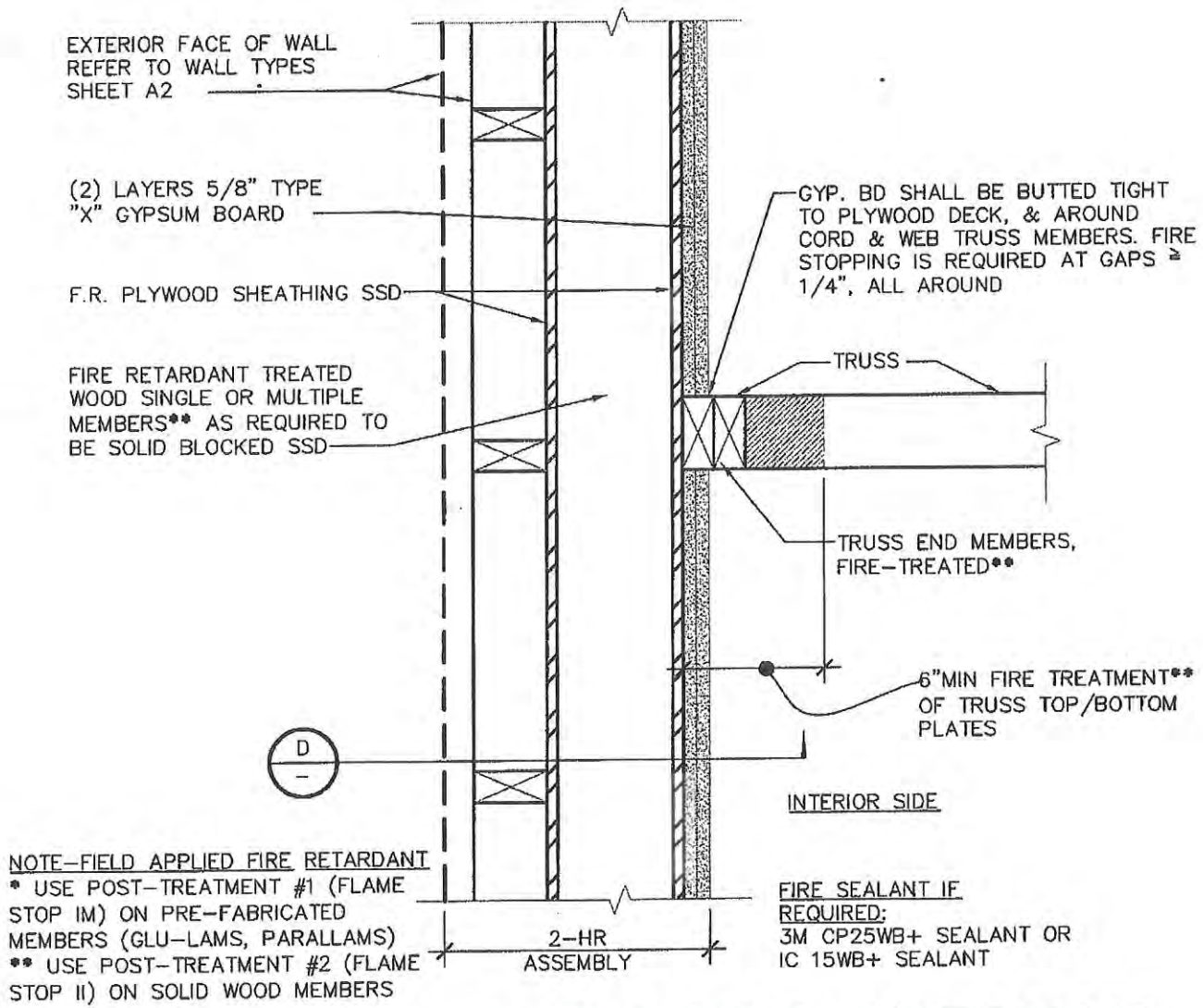
071814SMW-AMMR_2HR
Email

REVIEWED / APPROVED BY:

Mr. Lukas Quach

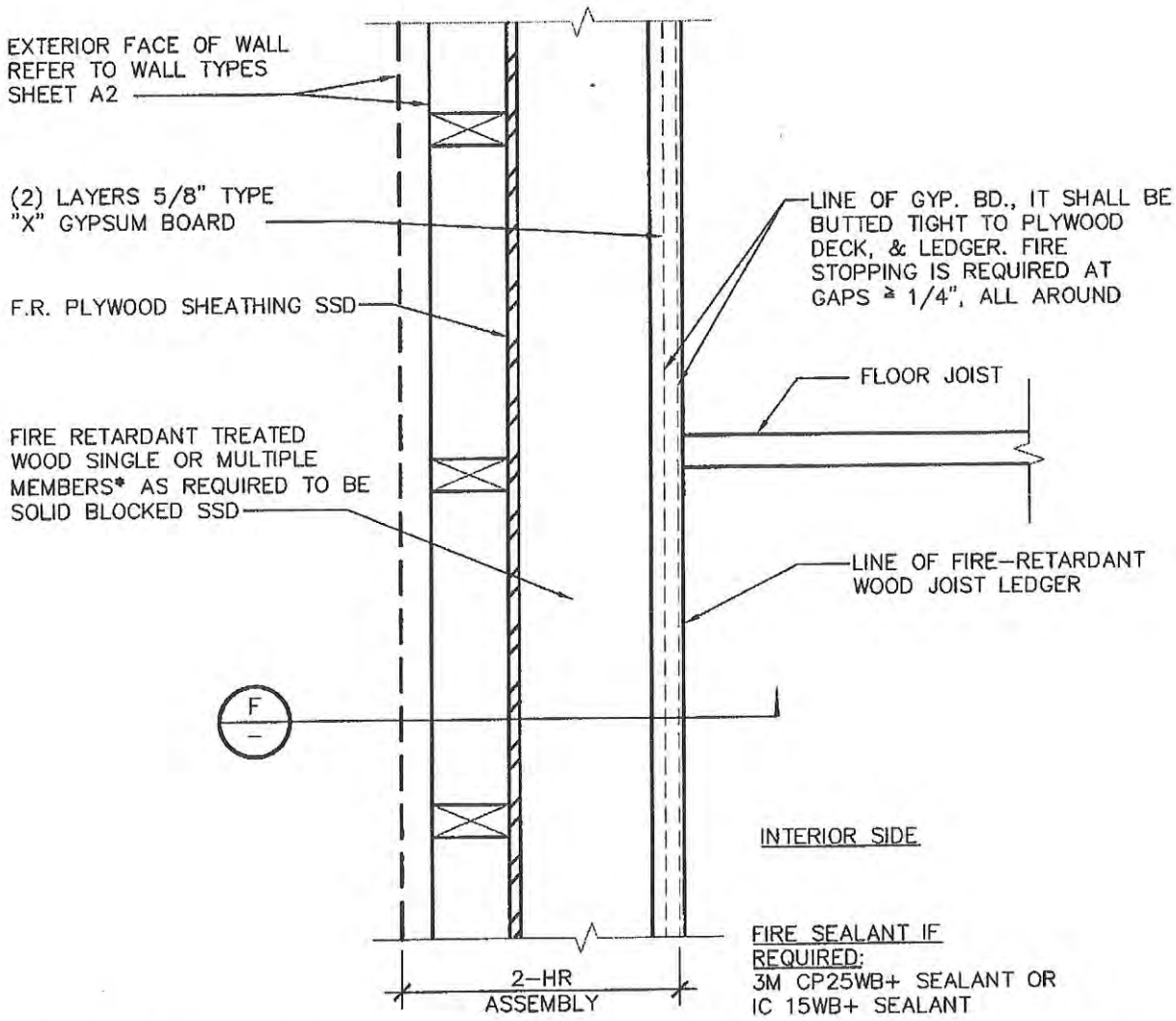
Mr. Mario Osuna

ADDITIONAL COMMENTS: _____



A EXT. WALL + FLOOR CONNECTION

SCALE: 1-1/2"=1'-0" PLAN EXHIBIT - A

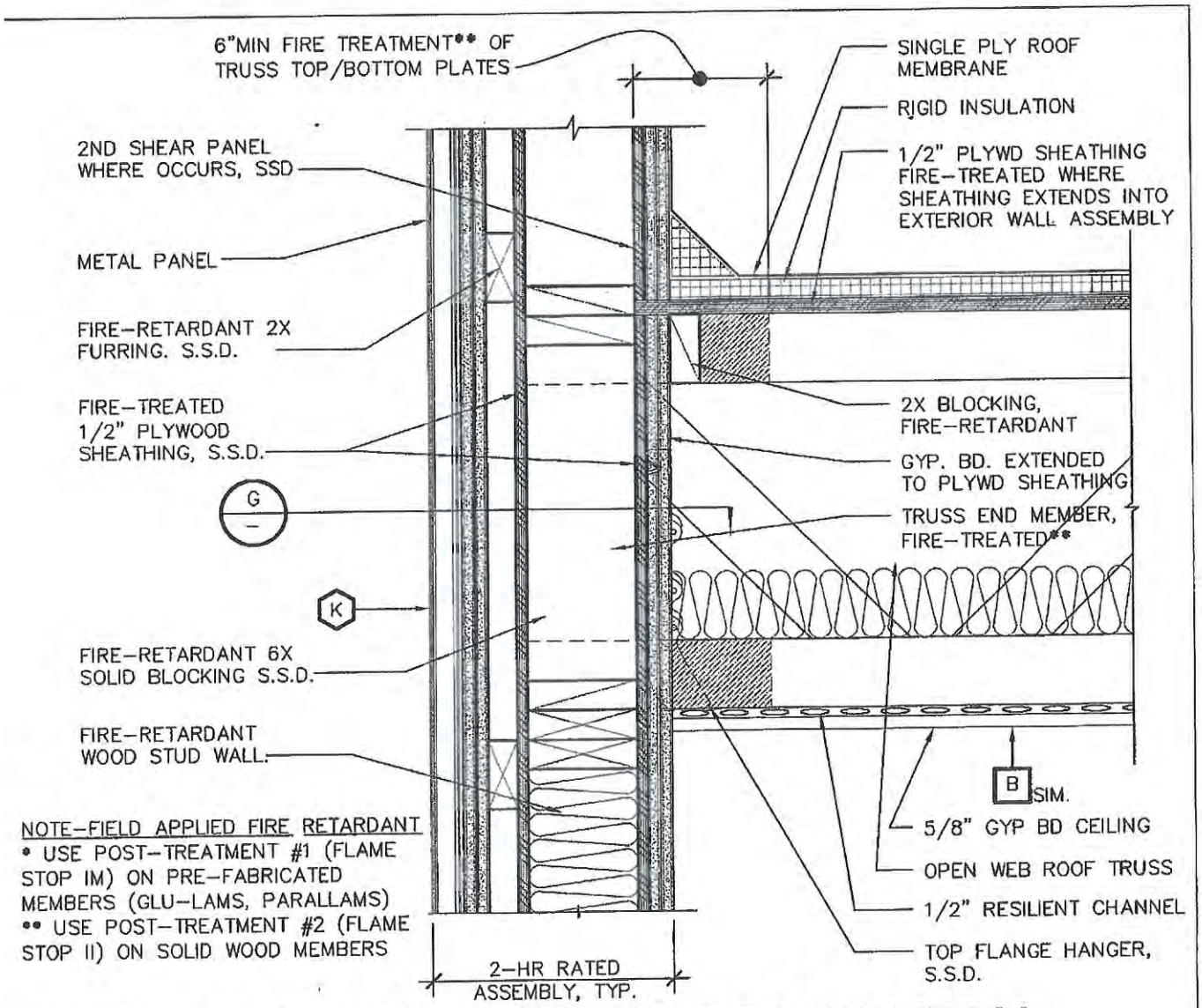


B EXT. WALL + FLOOR CONNECTION

SCALE: 1-1/2"=1'-0"

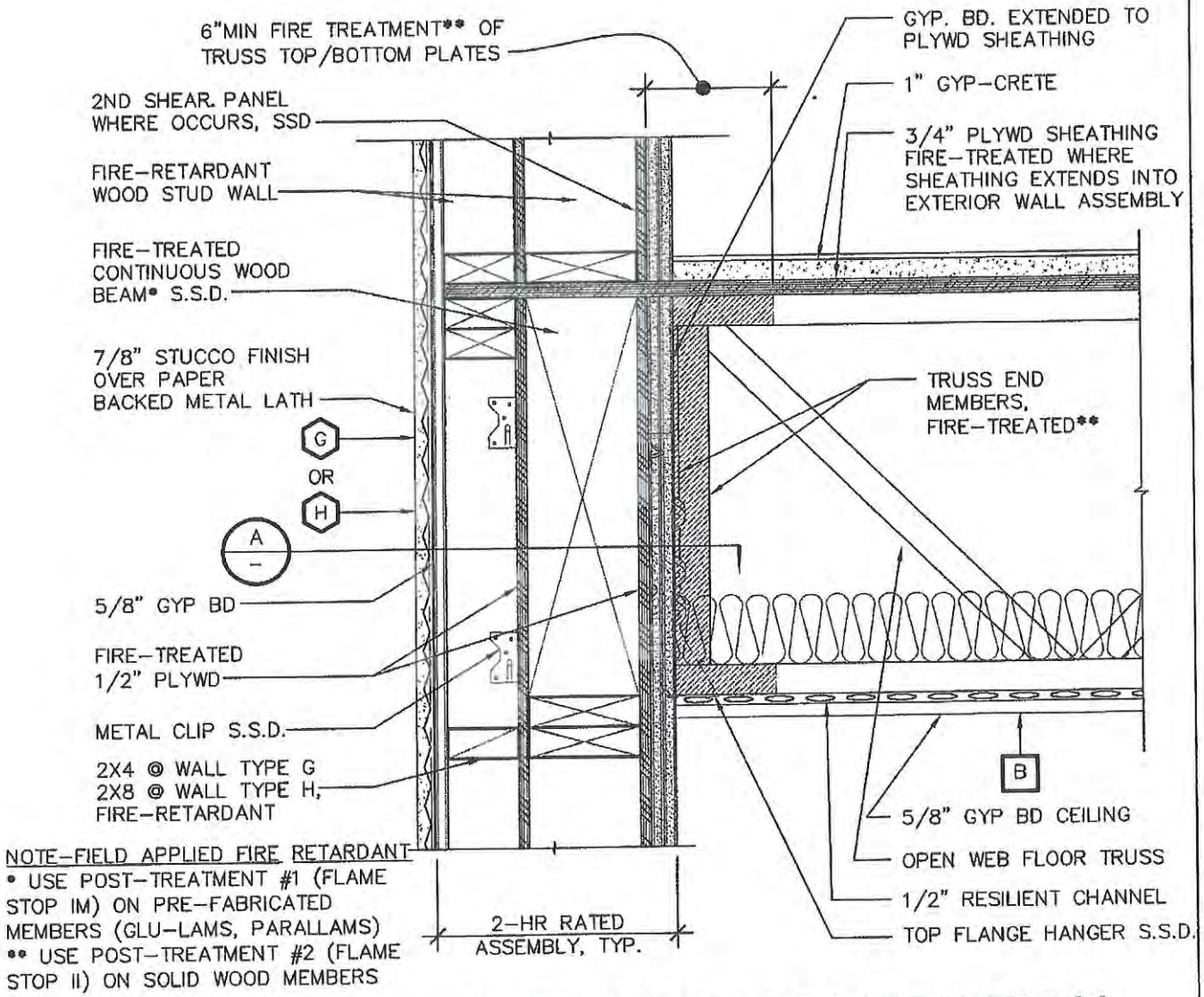
PLAN

EXHIBIT - B



C EXT. WALL + ROOF CONNECTION

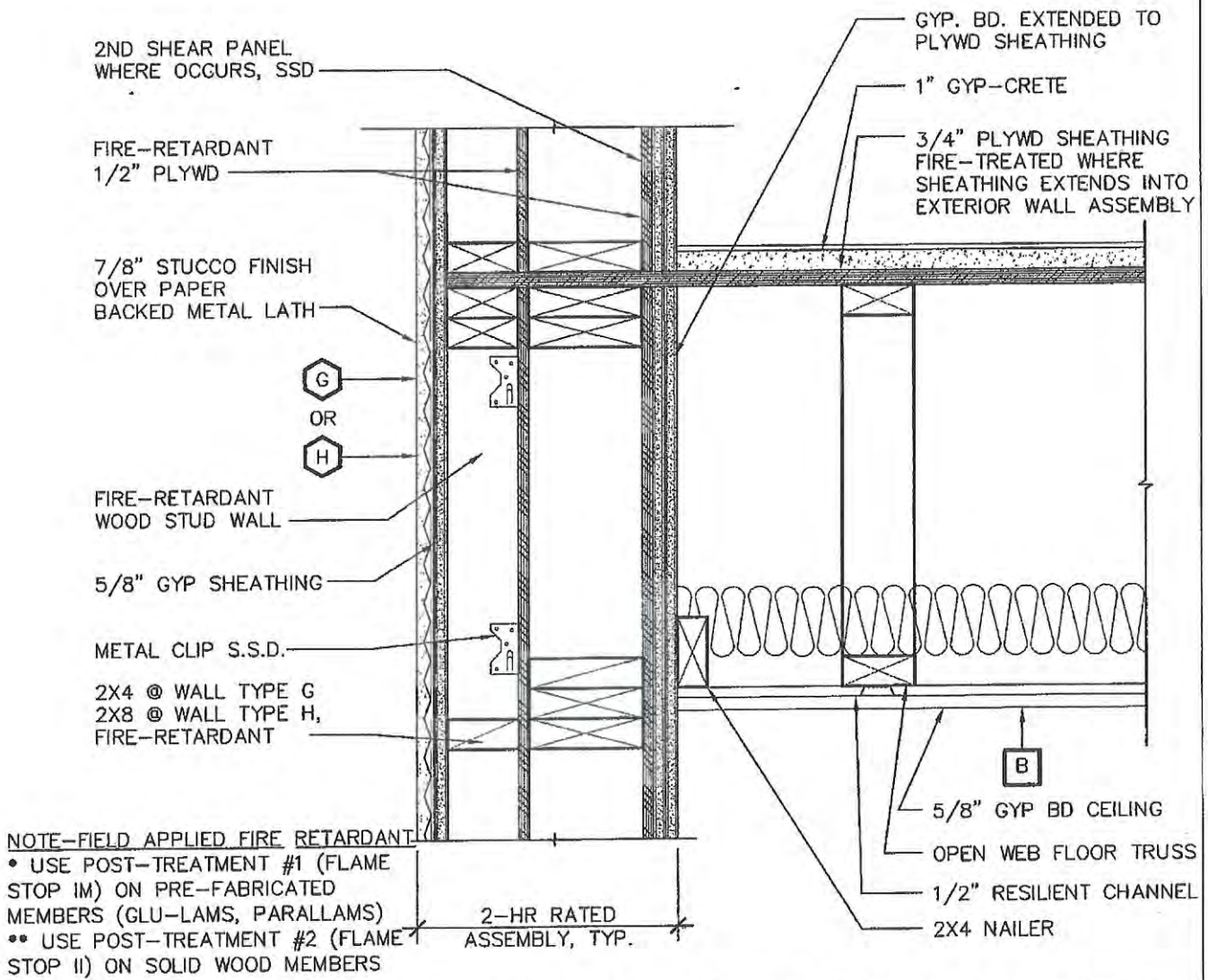
SCALE: 1-1/2"=1'-0" SECTION EXHIBIT - C



NOTE-FIELD APPLIED FIRE RETARDANT
* USE POST-TREATMENT #1 (FLAME STOP IM) ON PRE-FABRICATED MEMBERS (GLU-LAMS, PARALLAMS)
** USE POST-TREATMENT #2 (FLAME STOP II) ON SOLID WOOD MEMBERS

D EXT. WALL + FLOOR CONNECTION

SCALE: 1-1/2"=1'-0" SECTION EXHIBIT - D



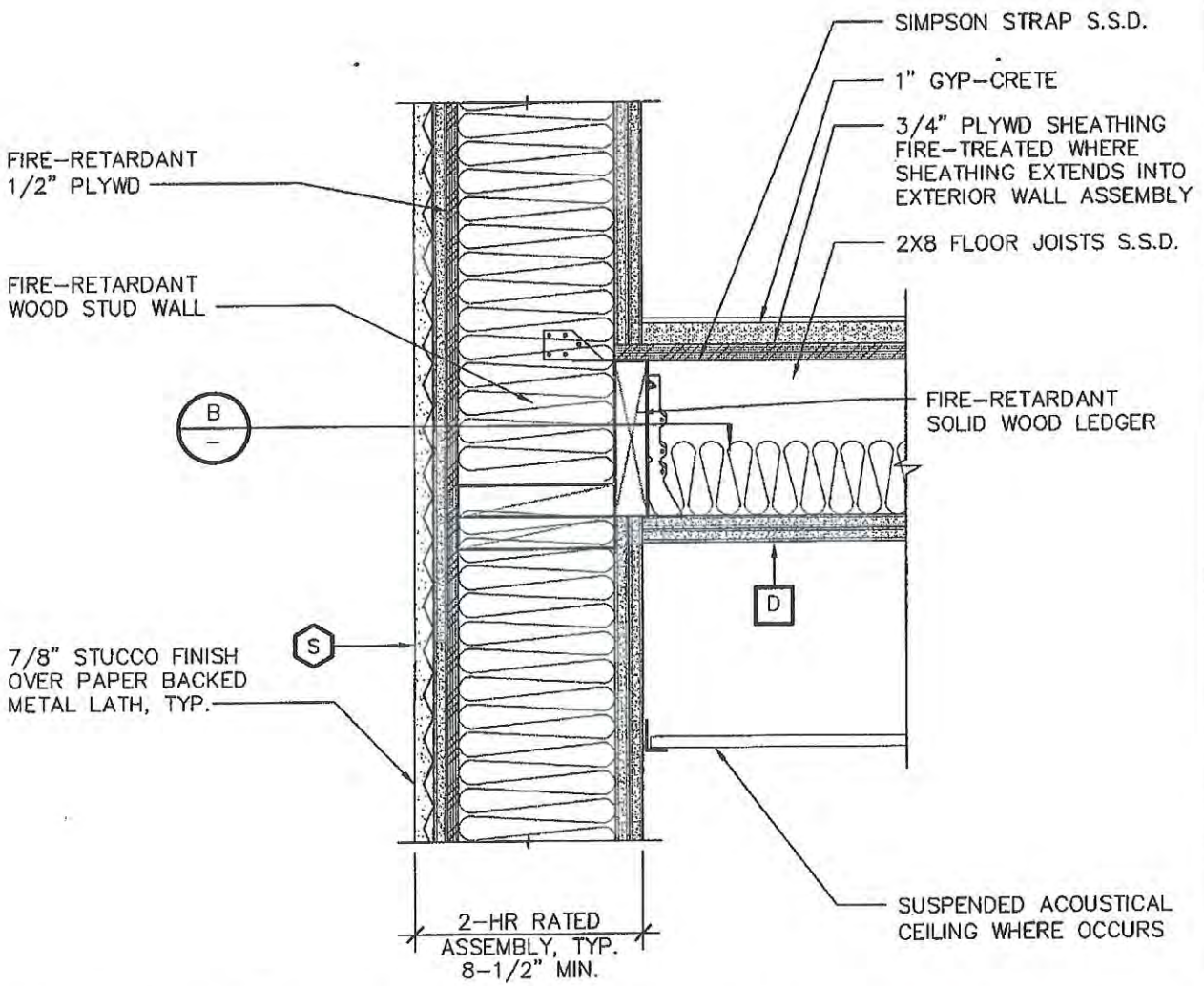
NOTE-FIELD APPLIED FIRE RETARDANT

- USE POST-TREATMENT #1 (FLAME STOP IM) ON PRE-FABRICATED MEMBERS (GLU-LAMS, PARALLAMS)
- ** USE POST-TREATMENT #2 (FLAME STOP II) ON SOLID WOOD MEMBERS

E FLR/CLG ASSEMBLY @ NON-BEARING SECTION

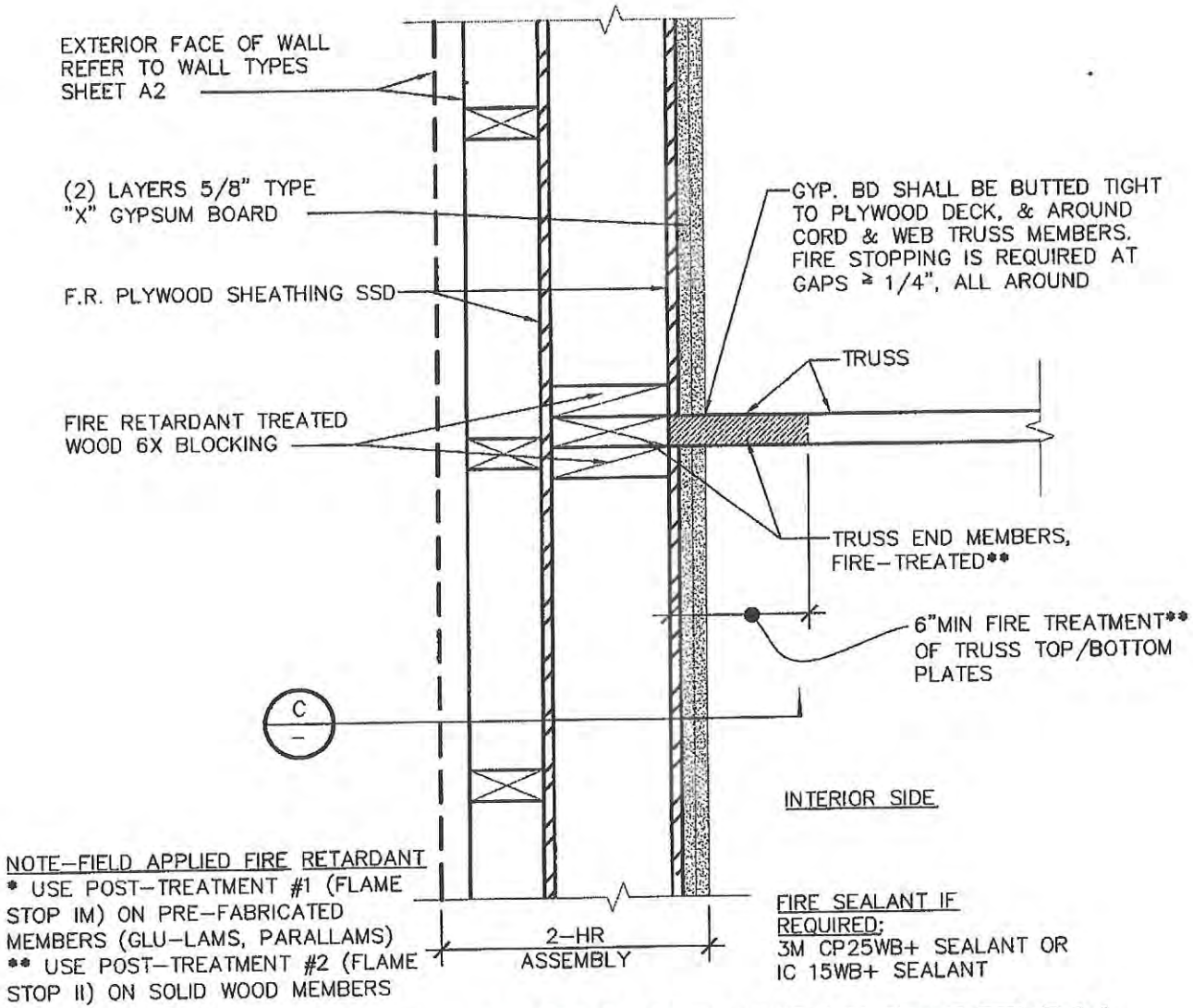
SCALE: 1-1/2"=1'-0"

EXHIBIT - E



F FLR/ CLG ASSEMBLY- FLOOR JOISTS

SCALE: 1-1/2"=1'-0" SECTION EXHIBIT - F



G EXT. WALL + ROOF CONNECTION

SCALE: 1-1/2"=1'-0" PLAN EXHIBIT - G

Exhibit H
Inspection Service Protocols: Flamestop II

Special inspection firm will perform periodic inspection on the Flamestop II paint application on the structural wood members for the referenced project. The protocol for inspection services is shown below based on the attached product data sheet from the manufacturer:

1) Contractor will call for inspections periodically on every level of construction and WABO certified fireproofing inspector will review material used during inspection.

2) Inspector will witness the FMII tip size of 0.012 and application rate of 125 sf per gallon over one coat as applied.

3) In situ moisture content of wood substrate, using a calibrated moisture meter, shall be measured to verify the pre applicable moisture content of 5%-15%.

4) Contractor shall confirm that the application is done at temperatures above freezing for 48 hours and area is kept dry or free from rain for 48 hours. Humidity is not an issue.

5) Contractor shall supply manufacturer's product to Inspector for product backup.

6) On site flame test will occur on sacrificial members from each level of wood construction.

7) Inspector shall supply daily field reports noting the above mentioned items and any other items needed to document application process.

FLAME STOP® II

PRODUCT DATA SHEET

FLAME STOP INC.™

1-877-397-7867

DESCRIPTION:

Flame Stop II is a water-based, post-treatment, interior/exterior fire retardant, and wood preservative that penetrates the material and bonds with the cellular structure. The penetrant protects the substrate by developing a self-extinguishing reaction when the treated material comes in contact with an open flame. When properly applied on certain untreated woods such as Douglas fir, the wood shall have a Class A rating. Flame Stop II contains polymers that maintain the fire retardation for up to five years for exterior applications. Flame Stop II is non-toxic, non-combustible, non-carcinogenic, easy to apply, and contains no PDBE's.

BASIC USES:

Flame Stop II protects exterior and interior woods such as: porous woods, cedar shake shingles, decking, and structural lumber.

ADVANTAGES:

Flame Stop II is a Class A, one-coat system with a Flame Spread of 25 and Smoke Developed of 25 on Douglas fir. Since Flame Stop II penetrates and forms a molecular bond with the substrate, the life of the flame retardation shall be indefinite for most interior applications. For exterior applications, it is recommended that the Flame Stop II be reapplied after five years. Flame Stop II will not alter the structural integrity of wood, such as pressure treatment does, and is preferred, because it is user-friendly, functions as a wood preservative, dries clear, and can be easily applied by spraying, immersing, brushing, or rolling. Flame Stop II contains mold and mildew inhibitors which are effective against black mold. Once cured for 48 hours, the treated material may be painted with most latex-based paints.

LIMITATIONS:

Storage Range: 45 – 110 degrees Fahrenheit (7 – 43 Celsius)
Shelf Life: One year, if kept within storage range.
A compatibility test is strongly recommended.
Moisture content should be 5 – 15% before treatment.
Do not dilute.

TECHNICAL SUPPORT

Total solids:	15%
Wt per gallon:	9 Lbs.
Average ph:	7.0
Color:	White - cures clear
Solvents:	Water
Bacterial:	Good resistance
Fungus:	Good resistance
Volatility:	None
Toxic:	No
Biodegradeable:	Yes
Corrosive:	Mildly corrosive on unplated steel
Linear shrinkage:	None
Insects, rodents and mold:	Excellent resistance

CONTACT US AT:

924 Blue Mound Rd.
Ft. Worth, TX 76131
817-306-1222
FAX 817-306-1733
info@flamestop.com

VISIT US AT:

www.flamestop.com

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APPLICABLE STANDARDS:

Flame Stop II was tested to the following standards:
ASTM E-84, NFPA 255, UL 723: U.S. Testing #LA 62466, Omega Point Laboratories #8746-108578 Class A Rating.

APPLICATION:

Ensure that all materials are clean prior to application. Apply Flame Stop II as is by spraying, brushing, rolling, or immersing at the rate of 125 square feet per gallon. If spraying onto a vertical surface where runoff could occur, multiple applications may be necessary. When doing multiple coats, wait until the first coat has penetrated **before beginning** the next application. One coat will require a 48-hour curing period. For spray application, use a .012 tip size and a low-pressure airless sprayer.

**** After treatment a 48-hour conditioning period is necessary before testing ****

TESTING:

A small-scale test can be preformed with the utilization of a sample of the treated material and a small flame (butane lighter or match). Hold a 4" x 12" piece of the treated material vertically and apply the flame to the lower portion for 10 seconds, and then remove the ignition source. The flame must self-extinguish within two (2) seconds. This test is similar to the small-scale NFPA 701 field test.

FLAMESPREAD 25 AND SMOKE DEVELOPED 25 PER ASTM-E84
February, 2010

TESTED BY:
U.S. TESTING COMPANY
INC. (SGS NORTH AMERICA)
OMEGA (INTERTEK)
COMMERCIAL TESTING

NOTES:

WARRANTY:

Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith.

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TEST REPORT

REPORT NUMBER: 8746-108578 Rev. 1
ORIGINAL ISSUE DATE: March 28, 2001
REVISED DATE: August 29, 2011

EVALUATION CENTER
Intertek Testing Services NA Inc.
16015 Shady Falls Road
Elmendorf, TX 78112

RENDERED TO

Flame Stop, Inc.
924 Blue Mound Road
Ft. Worth, Texas 76131, USA

Report of Testing "Flame Stop II" for compliance with the applicable requirements of the following criteria: ASTM E84-00a TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (ANSI 2.5, UL 723, UBC 8-1, NFPA 255)

ABSTRACT

Specimen I. D.	"Flame Stop II"
Test Standard:	ASTM E84-00a TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS (ANSI 2.5, UL 723, UBC 8-1, NFPA 255)
Test Date:	March 27, 2001
Client:	Flame Stop, Inc.
Test Results:	

FLAME SPREAD INDEX	**25**
SMOKE DEVELOPED INDEX	**25**

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Darrell Gonzales
Technician 2

August 29, 2011

Reviewed and approved:

Servando Romo
Project Manager

August 29, 2011

Intertek

I. INTRODUCTION

This report describes the results of the ASTM E84-00a TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS a method for determining the comparative surface burning behavior of building materials. This test is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

The purpose of the method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

"The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support... This method may not be appropriate for obtaining comparative surface burning behavior of some cellular plastic materials... Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place."

This test method is also published under the following designations:

ANSI 2.5
NFPA 255
UL 723
UBC 8-1

This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

IV. PURPOSE

The ASTM E84 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from tests of mineral fiber cement board and select grade red oak flooring. The test specimen surface (18 inches wide and 24 feet long) is exposed to a flaming fire exposure during the 10 minute test duration, while flame spread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration materials.

The furnace is considered under calibration when a 10 minute test of red oak decking will pass flame out the end of the tunnel in five minutes, 30 seconds, plus or minus 15 seconds. Mineral fiber cement board forms the zero point for both flame spread and smoke developed indexes, while the red oak flooring smoke developed index is set as 100.

IV. TEST PROCEDURE

The tests were conducted in accordance with the procedures outlined in the ASTM E84. The specimens are placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board are placed on top of the test sample between the sample and the tunnel lid. After the test, the samples are removed from the tunnel, examined and disposed of.

IV. REVISION SUMMARY

DATE	SUMMARY
Darrell Gonzales Darrell Gonzales	The specimen name was changed from "Flame Stop II (Modified)" to "Flame Stop II".
Servando Romo	**Note:** This report was originally created by Guy A. Haby from Omega Point Laboratories. The name of the laboratory changed to Intertek in 2005.
August 29, 2011	

V. DESCRIPTION OF TEST SPECIMENS

Date Received:	3/23/2001
Date Prepared:	3/23/2001
Conditioning (73°F & 50% R.H.):	4 days
Specimen Width (in):	24
Specimen Length (ft):	24
Specimen Thickness (in):	1 in.
Material Weight:	N/A
Total Specimen Weight (lbs):	114.6
Adhesive or coating application rate:	N/A

Mounting Method:
The specimen was self-supporting and was placed directly on the inner ledges of the tunnel.

Specimen Description:
The specimen was described by the client as "Flame Stop II, Flame Stop II applied over Douglas Fir Wood at 125 square feet per gallon".

The specimen consisted of a clear FR coating applied to (3) 24 in. wide x 8 foot long x 1 in. (nominal) thick Douglas Fir decks. The decks were constructed from (21) 1 in. x 4 in. (nominal) x 8 foot pieces of Douglas Fir lumber.

The product was received by our personnel in good condition.

VI. TEST RESULTS & OBSERVATIONS

The test results, computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table.

Test Specimen	Flame Spread Index	Smoke Developed Index
"Flame Stop II"	25	25

The data sheets are included in Appendix A. These sheets are actual print-outs of the computerized data system which monitors the tunnel furnace, and contain all calibration and specimen data needed to calculate the test results.

VII. OBSERVATIONS

During the test, the specimen was observed to behave in the following manner.

Time (min:sec)	Observations
0:36	Steady ignition
10:00	Test ended.

After the burners were turned off, a 60+ second after flame was observed.

Note: The specimen appeared to be self-extinguishing.

After the test, the specimen was observed to be damaged as follows:

Distance (FEET)	Damage Descriptions
0 - 8	The specimen was charred.
8 - 24	The specimen had a light black discoloration.

APPENDIX A
ASTM E84
DATA SHEETS

TEST RESULTS

FLAMESPREAD INDEX:	**25**
SMOKE DEVELOPED INDEX:	**25**

SPECIMEN DATA . . .

Time to Ignition (sec):	36
Time to Max FS (sec):	296
Maximum FS (feet):	5.2
Time to 980 °F (sec):	Never Reached
Max Temperature (°F):	682
Time to Max Temperature (sec):	594
Total Fuel Burned (cubic feet):	40.06

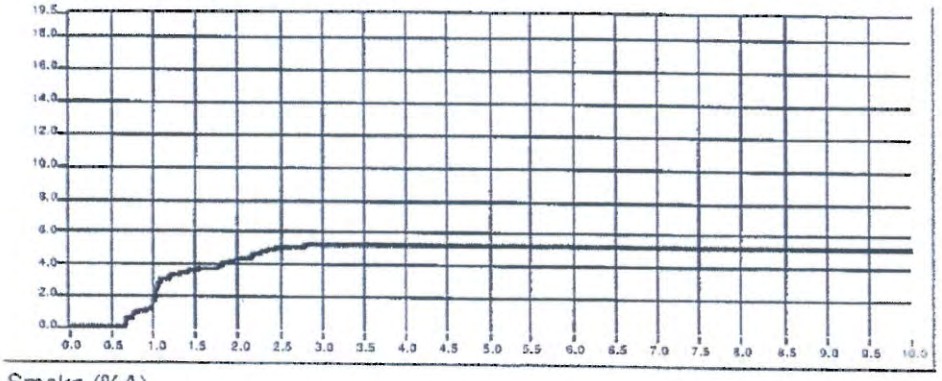
FS*Time Area (ft*min):	45.1
Smoke Area (%A*min):	24.4
Fuel Area (°F*min):	6040.9
Fuel Contributed Value:	14
Unrounded FSI:	23.2

CALIBRATION DATA . . .

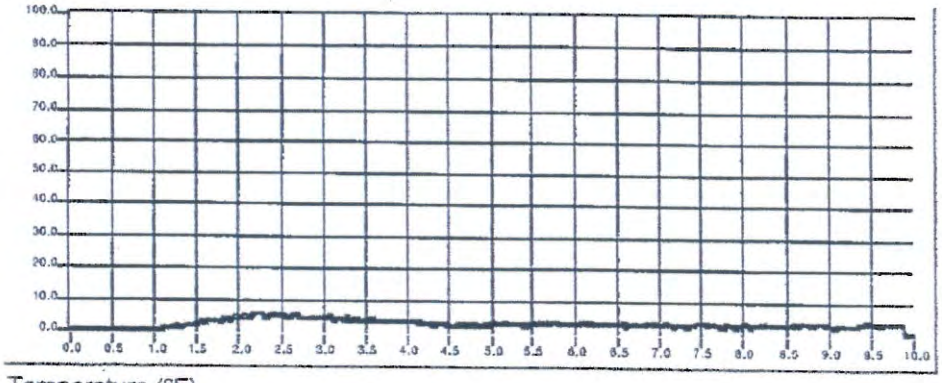
Time to Ignition of Last Red Oak (sec):	47
Red Oak Smoke Area (%A*min):	101.00
Red Oak Fuel Area (°F*min):	9318
Glass Fiber Board Fuel Area (°F*min):	5486

Intertek

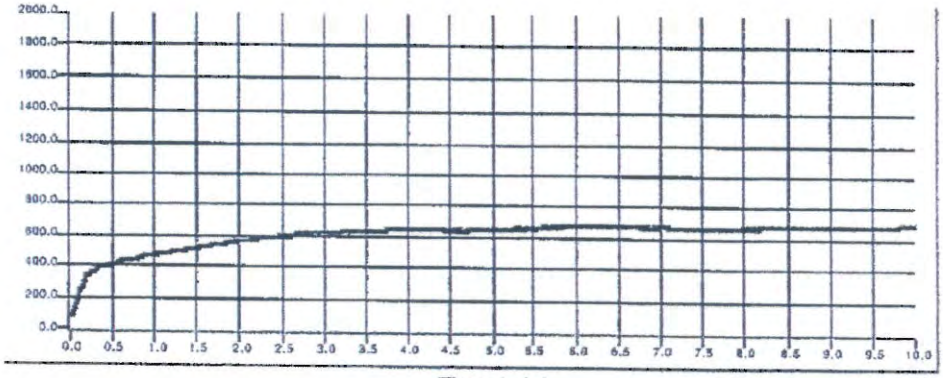
FLAME SPREAD (ft)



Smoke (%A)



Temperature (°F)



Time (min)