



U.S. Department
of Transportation
**Federal Highway
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

January 9, 1995

Refer to: HNG-14

Mr. Russell A. Walker
President
Ramco International
P.O. Box 12747
Pittsburgh, Pennsylvania 15241

Dear Mr. Walker:

Thank you for your letter of November 1, 1994, to Mr. Nicholas Artimovich of my office regarding Poly Lumber. Your letter transmitted static test data of Poly Lumber specimens compared with similar specimens of wood and other recycled plastic products. You submitted additional information regarding the tests on December 20, 1994. A summary of these test results, as certified by the United States Testing Company, Inc., is found below:

Average Test Results	Redwood	Treated Pine	Poly Lumber	Rec. Plastic*
Compressive Strength	88,700 lbs	137,900 lbs	85,300 lbs	63,900 lbs
[4x4] Maximum Flexure Load	5590 lbs	5490 lbs	2730 lbs	1730 lbs
[4x4] Deflection at Max. Flexure	.69 in	.66 in	2.32 in	1.19 in
[6x6] Maximum Flexure Load	14,500 lbs	21,600 lbs	8,400 lbs	5,000 lbs
[6x6] Deflection at Max. Flexure	.77 in	1.19 in	1.21 in	0.72 in
Screw Withdrawal	1,100 lbs	900 lbs	1,680 lbs	1,440 lbs
Nail Withdrawal	230 lbs	218 lbs	215 lbs	234 lbs

*Recycled Plastic with Wood Fibers.

[4x4] and [6x6] refer to the actual size of the test specimens, namely 4 inches square and 6 inches square, respectively.

SI Conversion: 1 in = 25.4 mm; 1 lb. force = 4.45 Newtons.

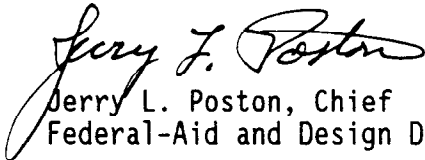
To date, we have found guardrail blockouts manufactured from steel, wood, recycled plastic, and recycled plastic with wood fibers, to be crashworthy when tested according to the National Cooperative Highway Research Program Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Safety Features. The information you supplied on the compressive strength and the maximum load under bending of Poly Lumber specimens indicates that Poly Lumber is at least comparable to recycled plastic with wood fibers and, based on past experience, that nominal 6-inch by 8-inch blockouts of Poly Lumber will perform satisfactorily if used with wood posts of a similar cross-section. Therefore, nominal 6-inch by 8-inch Poly Lumber blockouts used with compatible wood posts will be acceptable for use on the National Highway System if proposed by a State. Additional information will be needed before we can extend acceptance to your company's blockouts for use with steel guardrail posts. The required information includes details on blockout geometry and how the blockouts will be fastened to the posts to prevent rotation.

We have not found any form of recycled or composite plastic materials to be acceptable for use as guardrail posts. Because the static bending test results of Poly Lumber are much lower than for wood, your company's material will not be acceptable as guardrail posts unless proven through full-scale crash testing.

We anticipate that the States will require certification from Ramco that the blockouts furnished have essentially the same composition and physical and mechanical properties as the material used in the static tests.

Because Poly Lumber is proprietary, to be used in a Federal-aid Highway Project: (a) it must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that it is essential for synchronization with existing highway facilities or that no equally suitable alternative exists; or (c) it must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

Sincerely yours,



Jerry L. Poston, Chief
Federal-Aid and Design Division

Enclosure

Geometric and Roadside Design Acceptance Letter Number B-29

These materials must occur in the United States.

(2) The State's standard contract provisions that require the use of domestic materials and products, including steel materials, to the same or greater extent as the provisions set forth in this section.

(3) The State elects to include alternate bid provisions for foreign and domestic steel materials which comply with the following requirements. Any procedure for obtaining alternate bids based on furnishing foreign steel materials which is acceptable to the Division Administrator may be used. The contract provisions must (i) require all bidders to submit a bid based on furnishing domestic steel materials, and (ii) clearly state that the contract will be awarded to the bidder who submits the lowest total bid based on furnishing domestic steel materials unless such total bid exceeds the lowest total bid based on furnishing foreign steel materials by more than 25 percent.

(4) When steel materials are used in a project, the requirements of this section do not prevent a minimal use of foreign steel materials, if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or \$2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel products as they are delivered to the project.

(c)(1) A State may request a waiver of the provisions of this section if:

(i) The application of those provisions would be inconsistent with the public interest; or

(ii) Steel materials/products are not produced in the United States in sufficient and reasonably available quantities which are of a satisfactory quality.

(2) A request for waiver, accompanied by supporting information, must be submitted in writing to the Regional Federal Highway Administrator (RFHWA) through the FHWA Division Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RFHWA will have approval authority on the request.

(3) Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.

(4) The denial of the request by the RFHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.

(5) A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RFHWA to the Administrator for action.

(6) A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA response to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's action on such a request may be published in the FEDERAL REGISTER for public comment.

(7) In determining whether the waivers described in paragraph (c)(1) of this section will be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.

(d) Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

(23 U.S.C. 315, sec. 10 of Pub. L. 98-229, 98 Stat. 55, sec. 165 of Pub. L. 97-424, 96 Stat. 2136 and 49 CFR 1.48(b))

(48 FR 53104, Nov. 25, 1983, as amended at 49 FR 18821, May 3, 1984)

§ 635.411 Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through

competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or

(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of a project and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the PS&E for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price so established.

(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert pipes, and (2) the number and types of such alternatives which must

be set forth in the specifications for various types of drainage installations.

(e) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.

§ 635.413 Guaranty and warranty clauses.

(a) Except as provided in paragraph (b) of this section, clauses that require the contractor to guarantee or warrant materials and workmanship or to otherwise maintain the work for a specified period after its satisfactory completion by the contractor and its final acceptance by the State, will not be approved for use in Federal-aid contracts. Work performed and materials replaced under such guaranty or warranty clauses after final acceptance of work are not eligible for Federal participation.

(b) Contracts which involve furnishing and/or installing electrical or mechanical equipment should generally include contract clauses that require:

(1) Manufacturer's warranties or guarantees on all electrical and mechanical equipment consistent with those provided as customary trade practice; or

(2) Contractors' warranties or guarantees providing for satisfactory in-service operation of the mechanical and electrical equipment and related components for a period not to exceed 6 months following project acceptance.

§ 635.417 Convict produced materials.

(a) Materials produced by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison; or

(2) Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

(b) *Qualified prison facility* means any prison facility in which convicts,