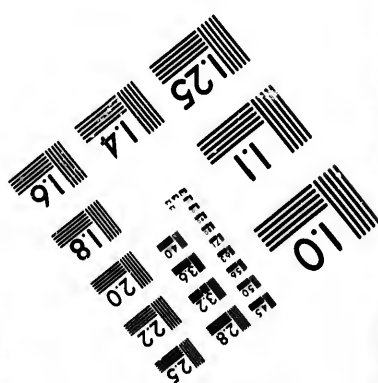
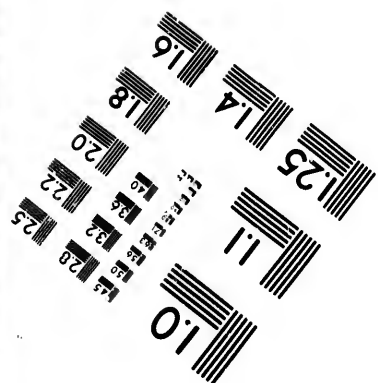
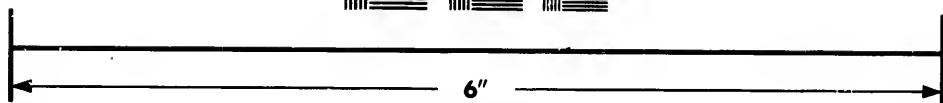
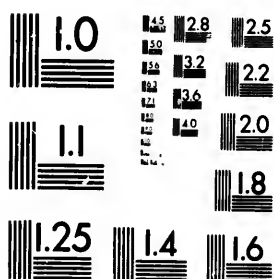


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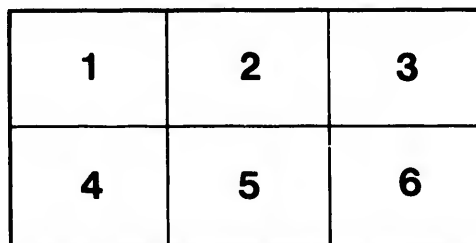
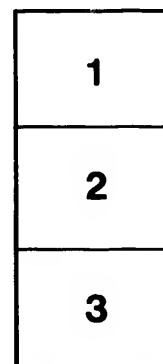
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GRAND TRUNK RAILWAY.

SPECIFICATION

FOR

Bodies of First-Class Cars to Carry 60 Passengers.

*To be used for Mail &
Smoking Cars with written matter
added.*

1875

General Thomas H. Morgan

SECRETARY

Office of the Secretary of the War

Washington, D. C.

June 10, 1864

GRAND TRUNK RAILWAY.

SPECIFICATION

FOR

Bodies of First-Class Cars to Carry 60 Passengers.

GENERAL CONDITIONS.

These car bodies must be made to the dimensions given in the following specifications: The timber used must be of first quality, dry, sound, and well seasoned, free from shakes, knots, sap or any other defect, and accurately fitted together. The wrought iron must be of best "Staffordshire," or of equal and approved quality: The castings must be made from tough grey pig iron, and must be sound, smooth and perfect in all respects. All the bolts and nuts used must be screwed to "Whitworth's" thread.

The car bodies must be fitted and finished in the most complete manner, to the entire satisfaction of the Company's *Mechanical Superintendent* or his agent, who shall be allowed to inspect the work, with power to reject any part found to be defective in quality or workmanship, or not in accordance with specification.

The iron work and springs to be warranted for twelve months after being set to work, any failure during that period, except such as results from accident, must be made good by the contractor.

Trucks will be supplied by the G. T. R. at any point on their line in the United States, as desired:—the Contractors will unload the trucks (in case they are not shipped on their own wheels,) and place the bodies upon them.

GENERAL DESCRIPTION.

The bodies are to be 50 ft. long x 9 ft. 8 ins. wide over frames, having a raised roof running the whole length of car. At each end they are to be fitted with "Miller's Patent" Platform and Coupler Buffer, as manufactured by the G. T. R. Company,—with the "Smith Patent" Vacuum Brake gear, cylinders, levers, guides, suspension links, and necessary $\frac{3}{4}$ in. rods to trucks,—and the brake wheel on platform, with pawl, ratchet and chain, all complete; also with "Baker's Car Warming Apparatus," stoves, pipes, cisterns, &c., all complete. Each car to have a saloon at one end. The platforms are to have awrought iron step on each side similar to G. T. R. standard.

Contractor or Builder tendering, will be expected to offer his own specification for the internal fittings and mouldings, style of finish, style and quality of painting and varnishing, hardware fittings, gallery and hand rails, water tanks, blinds head linings, bell cord suspenders, doors, hat rail baskets, lamps and brackets, swing back iron chairs, seats, saloon and porcelain fittings, lamp, &c., plush and all the upholsterer's work and material required, but the cars are to be in material, workmanship, finish, and every other respect, equal to the best First Class Cars now running on the G. T. R.

Lettering and numbering to be to instructions received.

UNDER FRAMING.—Frame is 50 ft. long x 9 ft. 8 ins wide, all of Southern or Georgia pine. Sidesoles 50 ft. long x $5\frac{1}{4}$ ins. x $8\frac{1}{2}$ ins. rabbitted like headstock on upper inner edge for $1\frac{1}{4}$ in. flooring. Intermediates and centrals are 4 ins. x $7\frac{1}{4}$ ins. All have two $1\frac{1}{2}$ in. tenons running into headstock which is 7 in. x $8\frac{1}{2}$ ins. Sidesoles and headstocks are secured by wrought iron corner brackets $\frac{3}{4}$ in. thick x 6 ins. deep and 8 ins. long, and are bolted to each timber by 4 bolts $\frac{3}{4}$ in. diamr. Centrals and intermediates are each bolted to headstock by one $\frac{3}{4}$ in. joint bolt 16 ins. long. Body bolsters are 39 ft. 4 ins. apart, 16 ins. x $5\frac{1}{2}$ ins. checked into and bolted to each through timber by 2 bolts $\frac{3}{4}$ ins. diamr; each is also trussed by two 1 in. rods, nuts to bed on cast iron

plate that covers the end and clips the underside of bolster.

Bolster to be provided with rubbing pieces, centre casting and king pin to suit the trucks supplied.

Running between the main through timbers, and spaced not more than 4. ft. 6 ins. apart, there are tenoned distance cross pieces $2\frac{1}{2}$ ins. \times $7\frac{1}{2}$ ins. At proper distances apart, and close to these cross pieces are 9 through tie-bolts $\frac{3}{4}$ in. diamr. 9 ft. 8 ins. long, screwed at both ends with nuts and washers, recessed flush with sidesole.

Transomes 7 ft. apart centres, section $10\frac{1}{2}$ ins. \times $4\frac{1}{2}$ ins. placed on flat, checked into and bolted to each main timber by 2 bolts $\frac{3}{4}$ ins. diamr. Transomes are trussed by one wrought iron rod 1 in. diamr. screwed at both ends, and having a set bolt and nut at centre; at ends to be faced with a cast iron plate screwed on, this also acts as a washer.

Transomes have bolted to them two light but strong cast iron brackets for truss-rods. These two truss rods are each $1\frac{1}{8}$ ins. diamr. with $1\frac{3}{8}$ ins. screwed ends, running about midway between sidesole and intermediate; they pass through the headstock, over packing and shoe on top of bolster (quite close to floor) and then below transome brackets, being provided at centre with $12\frac{1}{2}$ ins. double ended nuts, screwed with $1\frac{3}{8}$ ins. right and left thread, having also check nuts $\frac{7}{8}$ ins. thick at each end. Stout metal shoes well secured, and broad washer are required for truss rods. An intermediate transome, the same in every respect as truss transome is required midway between it and the body bolster.

The "Miller" platform is to be only 2 ft. between headstock and buffer beam, and from rail level to centre of coupling to be 2 ft. 9 ins. Gallery step is of bent wrought iron 2 ins. \times $\frac{1}{2}$ in. faced with 1 in. ash, and is stayed with $\frac{3}{4}$ in. rods, similar to G. T. R. standard.

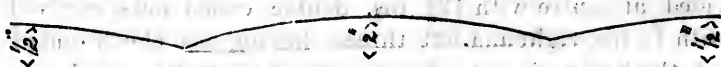
Flooring is of $1\frac{1}{2}$ in. Georgia pine, 4 ins. to 5 ins. wide, tongued and grooved, laid transversely and well nailed in rabbitted seat provided, and also to top of intermediates, centrals and cross pieces. A second or deafening floor of 1 in. white pine tongued and grooved, is well nailed to under-

side of main frame, the edges being neatly finished and rounded off.

UPPER SIDE FRAME.—This is composed of ash uprights on each side of the 17 windows, each 6 ft. 3 in. long between shoulders, and $3\frac{1}{2}$ ins. x $1\frac{3}{4}$ ins. in section; and also of 4 corner posts 7 ins. x $3\frac{1}{2}$ ins. of hard close grained



wood. The corner of sidesole and headstock is cut away, and corner post is stoutly screwed to this flat surface. All the posts have stout tenons for the sidesole and for wall-plate, which is of ash 5 ins. x $3\frac{1}{4}$ ins. in one piece, sidesole and wall plate being held together on each side by 19 tie-bolts $\frac{5}{8}$ in. diam. screwed at both ends. The side is further stiffened by a seat plank of red pine above sidesole; it is recessed $\frac{3}{8}$ in. into upright posts to which it is well secured by 2 coach screws $4\frac{1}{2}$ ins. x $\frac{1}{2}$ in. to each post. Seat plank is to be cut with a 2 in. rise or camber in it between the bolsters, and a $\frac{1}{2}$ in. rise from bolster to outer ends, as per sketch.



It is very important that this seat plank be carefully cut and made a good tight driving fit into upright posts. The seat plank is also bolted down to sidesole by $\frac{3}{4}$ in. bolts spaced about 4 ft. apart. Just below windows, there is a line of ash belting $4\frac{1}{2}$ ins. x 2 ins. And between it and the sidesole are two lines of light ash belting $2\frac{1}{2}$ ins. x $1\frac{1}{2}$ ins. and at the centre of each window, there is a short vertical ash post $3\frac{1}{2}$ ins. x $1\frac{3}{4}$ ins. stoutly tenoned into sidesole and window belt. All belting is checked into the outer face of each post flush, and is well secured by $2\frac{1}{2}$ in. No. 18 screws. Between upper belting and wall plate, 3 intermediates of ash 3 ins. x $1\frac{1}{2}$ ins. are tenoned into upright posts between each window. A window sill of ash runs all round car on upper belting.

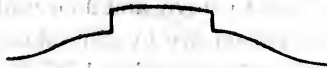
UPPER ENDS FRAMING.—This is formed at each end by the 2 corner posts, and 2 door posts as per sketch,



with uprights and bolting the same as at side, but at top the posts are tenoned into, and pinned to an arch rail of ash 14 ins. x $3\frac{1}{4}$ ins., all bolted together, and to sidesole by 4 through tie bolts $\frac{5}{8}$ in. diam. Door post are tenoned at both ends, flanged and screwed to arch rail, and secured to sidesole by an $\frac{5}{8}$ in. joint bolt 16 ins. long. Outside sheeting is of white wood at least $\frac{5}{8}$ in. thick, and inside sheeting is of hard wood at least $\frac{1}{2}$ in. thick. Freeze board to be of white wood, and to have O. G. finish at ends.

Windows are to have half oval finish at top and to be of best 26 oz. glass, 19 ins. x 26 ins. Two blinds are required, one moveable and one stationary, having wood slats, &c. End door is to have half circle top, and a moveable ventilating sash. Footstep of door to be faced with a cast iron plate, corrugated or figured on top, well screwed to floor, and closely fitted to door posts.

ROOF.—Roof is curved and raised as per sketch,



Raised portion is to run the whole length of car, and to finish on outside with a quick O. G. curve over platform. Each side frame of deck roof is formed of two pieces of red pine $5\frac{1}{2}$ ins. x 2 ins. in one length, with distance pieces tenoned between, so arranged as to leave spaces for 13 fixed glass windows, and 6 adjustable metal ventilators, the glass to have a figured surface. Roof sticks of lower roof are of ash $2\frac{1}{4}$ ins. x $1\frac{1}{2}$ ins. spaced not more than 16 ins. apart, at outer end they are bedded against and screwed to all plate, and at inner end tenoned into side of raised deck frame, and every third one is secured by a 6 ins. x $\frac{1}{2}$ in. joint bolt, with round slotted heads recessed flush. Roof sticks on

raised roof are of ash 2 ins. x $1\frac{1}{2}$ ins. spaced not more than 16 ins. apart. They are checked out for and screwed to top of frame. Seven iron roof ribs 2 ins. x $\frac{1}{2}$ in. and bent to shape of roof, are required. They span from wall plate to wall plate, passing upwards on outside of side frame. On each side of the plate is bolted an ash roof stick $2\frac{1}{2}$ ins. x 2 ins., and these being well screwed to wall plate, etc., hold the iron ribs in place. Deck frames have an end piece of ash with central panel same size as window, and it is to be well bolted to the end arch rail. Roof is covered with $\frac{3}{4}$ in. pine, tongued and grooved, and then sheeted with XXX tin plate, well soldered and secured to sheeting, both inner surface being well painted before the tin is fastened down.

MISCELLANEOUS.

Every joint in the whole frame and floor is to be carefully made, and well covered with stiff white lead before being permanently fixed. All through timbers in frame or roof must be in one piece from end to end. All bolts and nuts must have broad heads and washers. One signal lamp bracket G. T. R. standard, is required at each end of car. One zinc lined fuel box is required close to "Baker" stove; and inside sheeting close to stove, and floor underneath stove is to be well protected from fire by zinc sheeting carefully nailed down. Side piece is secured to $\frac{1}{2}$ in. wood packing, so as to leave an air space behind the plate.

The whole of the Patent Car Warming Apparatus is to fully comply with all the printed instructions as issued by Messrs. Baker, Smith & Co.

Well fitted metal chimneys are required through roof over every lamp. Catches are required on floor to hold doors wide open when found necessary, also locks and keys, &c.

Floor to be darkly painted in the passage, and under the seats to be somewhat lighter in shade.

Bodies for Smoking Cars are to be built to this specification, the Contractor offering his own specification for the internal fittings, but the seats are to be covered with carpet

of approved quality and colour, instead of being covered with plush.

FORM OF TENDER
FOR
PASSENGER CAR BODIES.

_____ do hereby agree to supply the *Grand Trunk Railway Company* with _____

_____ Car Bodies,
and place them on Trucks, in accordance with the specifications, &c., free of all claims for Patent Right, Royalties, &c., for the sum of _____

_____ for each Car.

Signature of Contractor.

Witness.

To be delivered at _____
free of transit charges, on or before the _____ day
of _____ 187

(Tenders to be endorsed "Tenders for First Class Car Bodies," or "Tenders for Smoking Car Bodies," as the case may be.)

