

THE GEILER COMPANY

CONTRACT NO. V539C-654

VABCA-5137

**VA MEDICAL CENTER
CINCINNATI, OHIO**

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OPINION BY ADMINISTRATIVE JUDGE THOMAS

On September 1, 1993, the Department of Veterans Affairs (VA), awarded Contract No. V539C-654 to The Geiler Company (Geiler or Contractor) to Replace Chilled Water Lines at the VA Medical Center, Cincinnati, Ohio (VAMC Cincinnati). Several of the new pipes, at different points in time, "failed." The issue before us is whether the VA is entitled to have these failures repaired by Geiler at no cost to the VA pursuant to the terms of the Contract. The VA maintains that the failures were latent defects and/or are covered by the Contract's warranty clause. The Geiler Company denies that it performed defective work and seeks to be paid \$71,701 for the work it performed fixing the "breaks," plus interest. A hearing was held in Cincinnati, Ohio. The record consists of the Complaint, Answer, Appeal File (R4, tabs 1-28), Appellant's Rule 4 File Supplement (R4 Supp, tabs 500 to 519), Government's Exhibits (Exh. G-29 to G-47), Appellant's Exhibits (Exh. A1 to A5), a two-volume hearing transcript (Tr. 1 and Tr. 2) together with post hearing briefs filed by the parties.

FINDINGS OF FACT

The VAMC Cincinnati's chilled water plant was originally built in 1964. The existing system included two sets of pipes (two 10-inch mains and two 8-inch mains) that distributed the chilled water to the VA buildings as well as returned the water back to the chiller plant. Those pipes were replaced by pipes ranging in size up to 16 inches that are more direct, but with more bends. (Tr. 2/87, 2/259) The Contract required the contractor to furnish labor, materials, and supervision and to perform work in accordance with the plans and specifications to replace the chilled water mains.

The VA contracted with the Architect/Engineering firm, Heapy Engineering (A/E or Heapy) to develop the Contract specifications and drawings for replacing the underground chilled water lines. It was one of Heapy's responsibilities to review the submittals that were sent in by Geiler and its subcontractors and suppliers. (Tr. 2/147-48; 166-67) Time was critical to the VA so they instructed the A/E to require the use of pre-insulated PVC pipe. (Tr. 2/311) Project No. 91-121, Replace Chilled Water Mains, was put out for bid on June 30, 1993.

Contract No. V539C654 (Contract) to provide and furnish all the necessary labor, material, equipment, and supervision to perform the work was awarded to Geiler on August 24, 1993, in the amount of \$279,196. (R4 Supp, tabs 500-01)

General Drawing Note H on Drawing H-2 states: "Thrust Blocks shall be provided at all changes in direction of underground piping. The Contractor shall install the underground system with thrust blocking, anchoring and other provisions recommended by the pipe manufacturer for a complete and operable system." The contract contained the following pertinent clauses: PERMITS AND RESPONSIBILITIES, FAR. 52.236-7 [NOV 1991], INSPECTION OF CONSTRUCTION, FAR. 52.24612 [JUL 1986], - INSPECTION OF CONSTRUCTION VAR 852.23674 [APR 1984], and GUARANTY, VAR 852.23675 [APR 1984]. The Contract also contained THE WARRANTY OF CONSTRUCTION CLAUSE, FAR 52.24621 [APR 1984], which provides:

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j)[sic,(i)] of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.
- (b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.
- (c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Governmentowned or controlled real or personal property, when that damage is the result of
 - (1) The Contractor's failure to conform to contract requirements; or
 - (2) Any defect of equipment, material, workmanship, or design furnished.
- (d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.
- (e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.
- (f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the

failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Governmentfurnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

Section 15706, PRE-INSULATED CHILLED WATER PIPING, provides:

Part 1.3, QUALITY ASSURANCE:

C. Manufacturers Training Service:

The Contractor shall obtain the services of a trained representative of the pipe system manufacturer to instruct contractor's work force in installation procedures for all preinsulated, prefabricated systems.

D. On Site Supervision of Underground Piping Installation:

(1) Provide services of a factory trained representative of the pipe manufacturer for a minimum of three days, to include preinstallation, installation and testing periods.

(2) Representative's daily written reports to the Project Engineer: Present the original of each report on the day it is prepared and forward a copy

to the manufacturer's main office. The report shall be signed by the manufacturer's representative. The report shall state whether or not the condition and quality of the materials used and *the installation of the system is in accordance with the plans, specifications, and published standards of the manufacturer, and is satisfactory in all respects. If anything connected with the installation is unsatisfactory*, the report shall state that corrective action has been taken or shall contain the manufacturer's recommendations for corrective action. The report shall cover any condition that could result in an unsatisfactory installation.

The representative shall take prompt action to return to the factory all damaged and defective material, and shall order prompt replacement of such material. (Emphasis added)

Section 15706, Part 1.4, Submittals, required the Contractor to furnish manufacturer's literature and data for anchors and thrust blocks as well as calculations for thrust blocking for underground piping.

According to Mark Pierce of Heapy, the new system was sized appropriately for the VAMC Cincinnati's cooling loads, and the new pipes were sized to accommodate a significantly higher pumping capacity and volume of flow than what the current chiller plant was able to pump. (Tr. 2/149, 150) The existing pumps were to be replaced with new, larger pumps at a later date.

Mr. Pierce opined that the new underground chilled water pipe system was designed to be able to withstand pressures significantly beyond that which the chilled water plant pumps would create. (Tr. 2/159) The A/E believed the day-to-day operation of the plant was at 95 to 98 psi, well below any of the maximum pressures and flow volumes that the system was designed to successfully withstand. (Tr. 2/160) The Contract drawings show the PVC transition to steel being inside the buildings.

Paul Mishurda, a staff engineer, assumed the role of Contracting Officer's Technical Representative (COTR). (Tr. 2/19) Mr. Mishurda testified that his responsibilities were to "supervise the contract, supervise the work, monitor the progress, make sure that the Project is proceeding as plans and specs, proceeding on time and report any deviations or problems to the contracting officer." He normally visited the site two to three times a day. (Tr. 2/28-29, 120; R4 Supp, tab 502)

Geiler designated Raymond Sauer as Project Manager for this Project. Mr. Sauer had 20 years experience in the construction industry. (Tr. 1/69-70) David Vogelpohl, who had 15 years of experience in the construction industry, was named Project Foreman. (Tr. 1/37, 172)

Geiler elected to purchase the pre-insulated chilled water piping from the manufacturer, Perma-Pipe. (R4, tab 5) Michael Brown, a factory-trained representative for Perma-Pipe, worked with Geiler on installation of the piping system. (Tr. 1/193-95) Pursuant to the Contract, Mr. Brown (or another qualified person) was required to visit the site for a minimum of three days, although he visited the job on five occasions. (Tr. 1/200; R4 Supp, tab 504) In addition to his five site visits, Mr. Brown spoke with Geiler

by way of telephone on a number of occasions. (Tr. 1/200; 175)

A pre-construction meeting was held on October 7, 1993, when the Notice to Proceed was issued.

In early October 1993, Geiler forwarded its Perma-Pipe submittal to the VA regarding the type of material that it intended to supply for this Project. Note 3.3 of that submittal prepared by Perma-Pipe provided: "Thrust blocks shall be field poured and keyed into undisturbed earth *by others* at changes of direction and, if specified at building entries. All thrust blocks shall be allowed to completely cure before operating the system at design temperatures. *The owners engineer is responsible for the thrust block design.*" Note 3.4 states, "[w]all and floor sleeves including packing, *shall be others.*" Note 8.0 provides that "[a]nchor blocks shall be field poured *and keyed into undisturbed earth by others.* All anchor blocks shall be allowed to completely cure before operating the system at design temperatures." (Emphasis added) This submittal also contained General Note 3.5, "[a]ll connections between POLY-PVC and steel pipe shall be made within the manholes and buildings. Steel pipe must be anchored within 5 ft. of flanged connections." (R4, tab 50) Also included was a page entitled "PVC Polytherm Typical Fittings" which showed a single line, non-scaled schematic of the thrust blocks.

The purpose of a thrust block is to take the pressure thrust from the pipes and diffuse it over a larger area, as well as to anchor the pipes in the ground. (Tr. 2/281) To "key" a thrust block into undisturbed soil is to dig a trench at the bottom of the excavation into which the concrete will be poured to form the thrust block. Once the concrete is poured into the excavation, it will flow into this trench and dry. The effect that is created is "key-like" in that a portion of the concrete thrust block protrudes from the body of the thrust block into the trench in the ground, thus locking the thrust block in a certain position.

Heapy reviewed the submittal for the VA and drew a box around note 3.3 and hand wrote the following comment: "Design of thrust blocks is by pre-manufacturer see sheet H2, General note H." No exceptions were taken to Submittal Notes 3.4, 3.5, or 8. (R4, tab 21) The submittal was stamped on October 13, 1993, as having been reviewed by Heapy with "comments noted" and then subsequently, on October 14, 1993, by COTR Mishurda as "approved as noted." (R4 Supp, tab 5) The only anchors that were installed were on the steel pipe and were observed, and Appellant asserts, approved by the COTR. The only anchors installed were associated with steel piping, not with the PVC pipe. Perma-Pipe maintained that they were not responsible for the design of the anchors because their responsibility was "end to end" and did not extend beyond their pipe.

Neither the Contractor nor the VA seems to have taken any action concerning the disclaimers on the Perma-Pipe prepared submittal. Heapy did not provide any details regarding the anchors to be installed on the steel pipe. (Tr. 1/91; 2/171-72) Geiler says it never made a submittal on steel anchoring. (Tr. 1/138) Geiler never submitted any calculations for the thrust blocks as required by Section 15706, part 1.4.

The Contractor commenced work in mid-October, 1993, and complied with all of the training and certification requirements of the Contract. (R4 Supp, tab 501) The work progressed in a timely manner and on April 12, 1994, system start up occurred. (R4, tab 6) Mr. Brown submitted a letter dated April 28, 1994, to Geiler that certified that all his inspections had been performed and that the pipe had been installed correctly. (R4 Supp,

tab 504) On May 10, 1994, in accordance with the terms of the Contract, Appellant provided a Letter of Certification from Perma-Pipe:

This will certify that our field service representative, who is factory trained and employed on a full-time basis for field service and supervision, has reviewed all aspects of the installation procedure used during the installation and testing of the underground distribution system, for the referenced Project. PERMA-PIPE certifies that the method of installation and testing employed by the contractor was in accordance with industry standards and our recommendations.

PERMA-PIPE warrants our system, in accordance with Article #10 of the Terms and Conditions of Sale found on the reverse side of our order acknowledgment. PERMA-PIPE further certifies that materials and components furnished in this system are in complete accordance with the contract specifications and/or the approved submittal data."

(R4 Supp, tab 1)

The vice-president of Perma-Pipe, Mr. Robert Maffei, signed the notarized certification. (R4 Supp, tab 1) Geiler's piping system passed all hydrostatic testing procedures mandated by the Contract documents. (Tr. 1/98, 183-85, 206; Tr. 2/49-50, 105, 237-38; R4 tab 2)

COTR Mishurda appeared to be diligent in inspecting the progress of Appellant's work. (Tr. 2/29) He would go out on the Project site approximately 2 to 3 times per day, unannounced, in order to see how the work was progressing. (Tr. 2/29) He would check to see if Appellant's superintendent on the Project had any questions or concerns. He observed the layout of the pipes in order to make sure they were being placed in the direction as indicated in the design drawings, made sure manholes were being built where intended, and confirmed that thrust blocks were placed at any changes of direction in the pipe. He also made sure that Geiler was addressing safety issues for its employees on site and that other industry standards were being adhered to. (Tr. 2/30)

COTR Mishurda testified that the extent and scope of his inspections were what he considered to be a general industry-type inspection of the piping. (Tr. 2/39) He also commented on specific aspects of the installation of the piping system that he believed, pursuant to the terms of the Contract, were not to be considered within the purview of his inspections. He stated that he never inspected the actual methods of installation of the thrust blocks, rather, he checked only to see that they were in fact present and were placed at changes of direction of the pipe. (Tr. 2/14-18, 33) In response to the direct questions of whether or not he looked to see how the thrust blocks were installed, COTR Mishurda stated that he did not because "that was an issue with the manufacturer." (Tr. 2/33) COTR Mishurda explained that the manufacturer had to provide the specific method of putting thrust blocks in because there are several ways of installing a thrust block. (Tr. 2/33) COTR Mishurda explained that he assumed Perma-Pipe was instructing Geiler, per the Contract requirements, as to how to excavate and install the thrust blocks.

He stated that he did not look to see if the soil excavations for the thrust blocks were dug correctly to undisturbed soil or if the soil was tamped down around the thrust blocks. (Tr. 2/35) The reason given by COTR Mishurda for this general and broad inspection was that specific inspections of back filling and the installation of the pipe and thrust blocks and anchoring, were the pipe manufacturer's (and ultimately the Contractor's) responsibilities. (Tr. 2/36)

On May 23, 1994, a 10-inch supply pipe, that entered a manhole and terminated at a metal flange end cap, failed. The manhole was located just southwest of Building 5. (R4, tabs 6, 10) On May 24, 1994, the return line at the same location failed. (R4, tabs 6, 10; Tr. 1/101-02) These two failures were designated as failure Number 1 and are shown as "F1" at R4, tab 10. A thrust block was located approximately five feet from the manhole. (Tr. 1/104)

Both pipes failed in much the same manner, in that the cracks were longitudinal and started at the manhole and went out. (Tr. 1/103; 2/63-64) During installation of the 10" pipes in the manhole, it was determined by Geiler and COTR Mishurda that the vertical support shown in the Contract drawings would not prevent the end caps from blowing off the ends of the horizontal pipes. (Tr. 1/106) The anchor shown is a pedestal type support and would not secure the pipe in all directions of movement. The detail showed no means of anchoring the end of the pipe, which was capped in the manhole but could be used if there were further expansion. The situation was solved, by temporarily wedging a 4 by 4-inch wood beam horizontally between the end cap and the wall of the manhole. When the failure occurred, COTR Mishurda called Geiler's Project Manager, Mr. Sauer, who responded immediately. Appellant worked through the night to repair the pipes. (Tr. 2/62; R4 Supp, tab 506) When Geiler made the repairs with respect to failure Number 1, it installed the same type PVC pipe that it had installed originally. The VA and Geiler agreed that the wood anchor would be replaced with a piece of 3-inch steel pipe after testing. This was done when the repairs were made.

A final inspection was conducted on June 10, 1994. The punchlist was relatively minor. (Tr. 2/51-52, 107; R4, tab 2) On July 1, 1994, Geiler provided a warranty letter to the VAMC Cincinnati that guaranteed the piping system against defects in workmanship and materials for a period of one year. The warranty letter specifically excluded replacement of equipment and/or materials due to the VAMC Cincinnati's abnormal or abusive usage. (Tr. 1/46; R4, tab 21)

A memorandum dated August 2, 1994, from the Assistant Chief, Engineering Service, to the Contracting Officer titled: "Settlement with THE GEILER COMPANY, Project 91-121, Contract V539C-654, REPLACE CHILLED WATER LINE-CINCINNATI OH," stated that the work was completed in accordance with the plans and specifications. The Contracting Officer, Judith Blasingame, approved that memorandum on August 4, 1994. No retainage was withheld. (R4, tab 2) Included with the Settlement Memorandum was a Release signed by Mr. Sauer that stated in part: "contractor hereby releases and discharges The United States of America of and from all liabilities, obligations, and claims whatsoever under or arising out of said contract, except the following." No claims were specified. Final payment was made August 4, 1994. (Tr. 2/97, 107)

Pipe failure Number 2 occurred on September 29, 1994, in a fourteen-inch pipeline in

the basement of Building No. 1. (Tr. 1/109-10; R4 tab 10 at F2) Thrust blocks were located immediately outside Building No. 1 where the fourteen-inch line entered the building. Again, the cracks to the 14-inch pipe were longitudinal in nature and started on the inside of the building and projected outward underground. (Tr. 2/65-66)

During the construction process, Geiler installed PVC pipe through the basement wall and into the basement of Building No. 1, terminating with a PVC flange, which was connected to a steel flange, which connected to a short length of steel pipe tying into the existing chilled water pipes. The new steel pipe, which Geiler furnished, was anchored from the ceiling of the crawl space with angle iron supports down to the backside of the steel pipe. This was much the same way as the steel pipe had been anchored prior to Geiler's installation. (Tr. 1/110-11) The anchor used in Building No. 1 was observed by, but not specifically discussed with, COTR Mishurda (Tr. 1/112) The VAMC Cincinnati did not raise any concerns about the manner in which this steel pipe had been anchored. (Tr. 1/113)

VAMC Cincinnati requested that Geiler repair the broken fourteen-inch line. (Tr. 2/67) Since the PVC pipe had a long lead-time, the VAMC Cincinnati decided to replace the broken pipe with steel pipe. The PVC pipe was cut outside the building and steel pipe was used to go into the building. (Tr. 1/114) On October 7, 1994, Jeff Bishop of Perma-Pipe visited the site. VA Chief Utility Supervisor Ed Clark told him that water hammers and trapped air were a problem after start up. (R4, tab 3) North American Pipe Corporation reviewed some of the pipe pieces and in a February 1, 1995, letter to Perma-Pipe stated that the splits they examined "are not inconsistent with impact damage, perhaps water hammer." (R4, tab 7)

On January 3, 1995, Geiler submitted a "claim" for \$42,000 and requested a meeting as soon as possible to resolve the matter. (R4, tab 5)

The third pipe failure occurred on March 8, 1995, this time where the sixteen inch main line entered Building 13, the main utility plant. (R4, 10 at F3) The system had previously been shut down on March 7, 1995. (R4, tab 10) After the system was re-started, the failure occurred. The PVC pipe goes through the wall to a flange, then to a steel 90-degree turn, then to a vertical steel pipe. (Tr. 1/114-15) The pipes were supported vertically with hanger supports from the ceiling. (R4, tab 10) Heapy had originally designed a PVC 90-degree turn, but everyone agreed that the PVC 90 would be improper, so it was converted to a steel turn. (Tr. 1/115) The six to eight feet of vertical steel pipe that Geiler installed was anchored with a piece of pipe welded on the heel of the steel 90 and set against the opposite wall. When the decision was made to use steel for the 90-degree turn, how to anchor the steel was discussed with COTR Mishurda. (Tr. 1/116-118) The steel bumper anchor that Geiler installed was very similar to the one that existed prior to Geiler's installation. (Tr. 2/255-56, 328)

After the March 8, 1995, failure, Perma-Pipe sent Mr. Rick Kitzel, to investigate the failure. He investigated the circumstances involved in failure Numbers 1 and 3, but not failure Number 2. (R4, tab 10) His report ruled out thrust blocks as a cause of the failures. Mr. Kitzel was called as a witness for the VA. He stated that the steel bumper at failure Number 3 was within 5 feet of the flange connection but in his opinion, the steel pipe should have been anchored in three different directions, *i.e.* all points of movement.

(Tr. 2/137-38) He testified that failure Number 1 involved improper horizontal bracing and no vertical support. (Tr. 2/129) At failure Number 3, vertical support was not a problem because the steel pipe ran up approximately 15 feet then turned horizontally and was supported by hangers from the ceiling, so he "didn't feel that support or weight of the pipe was a contributing factor here." (Tr. 2/131)

Wolf Technical Services, Inc., with Dr. Tom Isley of Isley Enterprises, Inc., was asked on June 28, 1995, to investigate the pipe failures for the Cincinnati Insurance Company. In their September 13, 1995 report, Dr. Isley stated that both failure Numbers 2 and 3 involve a 90 degree upward bend and as the flow makes the 90 degree bend the vector forces developed are at a 45 degree angle downward. The forces that need to be resisted are horizontal and downward and if no support is provided, the forces would apply a point load at the bottom of the pipe that would tend to develop a longitudinal crack. The report claims that it is preliminary and recommends further analysis to determine if the pipe hangers are adequately supporting the pipe. These were the hangers that Mr. Kitzel assumed were providing proper support and which were pre-existing to Geiler's Contract. The Wolf Report does not mention the need for anchoring at all points of movement.

The thrust block in the area where the second pipe failure occurred was approximately 20 to 25 feet away from Building 13. (Tr. 1/119) The crack to the sixteen-inch pipe was longitudinal in nature. (Tr. 2/128; R4, tab 10) The VAMC Cincinnati requested that Geiler repair this failure. (Tr. 2/73-74) Geiler performed the necessary repair work in the same manner it had repaired failure Number two, by cutting the PVC outside the building and utilizing steel piping to go inside. (Tr. 1/120) Mr. Clark indicated that the prior system was black iron and the black iron went through the building, joining the PVC on the outside. (Tr. 2/253)

A fourth pipe failure was discovered in January 1996. A 4-inch pipe failed at manhole number two which was located at the northernmost end of the Project. (Tr. 1/123-24) The pipe had been anchored into the wall by drilling two holes in the wall behind the flange and coming out and across the face of the flange with a piece of angle iron. According to Mr. Sauer, during this installation "everybody looked in the hole everyday and knew what we were doing there." (Tr. 1/124)

Once again, the cracks in this break were longitudinal in nature. (Tr. 2/314) The VAMC Cincinnati did not request that Geiler repair this pipe failure because they did not consider it to be covered by the Contract warranty period. (Rule 4 tab 20) All work relating to this pipe failure was performed by Rogers Plumbing. (Tr. 1/126) VAMC Cincinnati is not seeking any compensation from Geiler for the repair costs it incurred with respect to this fourth failure.

Project Manager Sauer testified that if he had seen Geiler workers deviating from the plans and specifications, he would have stopped the work on this Project. However, he did not observe any such deviations. (Tr. 1/77) David Vogelpohl, Geiler's Project Forman, testified that he followed the plans and specifications to the letter. (Tr. 1/173) He also did not see Geiler workers deviating from the plans and specifications. (Tr. 1/174) The VAMC Cincinnati never advised Geiler that it was performing the job poorly, negligently, or contrary to the plans and specifications. (Tr. 1/188)

Heapy did not perform any on-site inspections of the work during the course of construction. (Tr. 2/28, 216) COTR Mishurda could not pinpoint anything to show that the pipe was installed contrary to the plans and specifications. His daily reports on the Project do not reveal any complaints that Geiler deviated from the plans and specifications. (Tr. 2/98, 100, 105, 107, 109)

The Contract required that thrust blocks be poured at each change of direction of the underground piping. Essentially, a thrust block is a large mass of concrete that is poured around a directional change in the pipe to prevent the pipe from moving or from separating under pressure. (Tr. 1/81, 249-50) The thrust blocks were to be poured to solid, undisturbed earth. (Tr. 1/153) The soil around the thrust blocks was compacted by Geiler. (Tr. 1/154) Both Mr. Brown and COTR Mishurda reviewed Geiler's excavation, pouring and installation of the thrust blocks (Tr. 1/206, 216; Tr. 2/32-33) N