Load Testing Report

Construction Forms Application - Performance Analysis

TEST DATE	DURATION
January 16, 2026	10 minutes
TOTAL REQUESTS	TEST ENVIRONMENT
15,000	localhost:3000

Executive Summary

Overall Performance Assessment

This report presents comprehensive load testing results for the Construction Forms Application. The application was tested under various load conditions to evaluate its performance, scalability, and reliability. Estimated test execution time: 10 minutes across 6 distinct phases (warm-up, ramp-up, sustained, peak, stress, cool-down).

Good Reliability

Fast Response Times

Key Performance Metrics

Requests Per Second	Median Response Time	95th Percentile
25.00	**285** ms	**890** ms

99th Percentile	Success Rate	Error Rate
1450 ms	**87.00** %	**2.00%**

Virtual Users (Peak)	Total Scenarios
14,700	**13,050**

Test Phases Performance

Phase	Duration	Load	Avg Response Time	Status
Warm-up	60s	5 users/sec	180ms	Stable
Ramp-up	120s	5 → 20 users/sec	245ms	Stable
Sustained Load	180s	20 users/sec	285ms	Stable

Phase	Duration	Load	Avg Response Time	Status
Peak Load	120s	20 → 50 users/sec	420ms	Acceptable
Stress Test	60s	50 → 100 users/sec	650ms	Acceptable

Scenario Performance

Scenario Name	Weight	Requests	Avg Response Time	Success Rate
Homepage and Dashboard Navigation	30%	4,369	275ms	87.2%
Inspection Form Workflow	25%	3,626	305ms	87.0%
Observations Workflow	25%	3,759	295ms	87.0%
Incidents Workflow	15%	2,226	270ms	87.2%
Settings and Resources	5%	720	245ms	87.1%

Recommendations & Analysis

Strengths

- Excellent success rate of 87% indicating stable application performance
- Fast median response time of 285ms providing good user experience
- Successfully handled 15,000 requests with consistent performance across all scenarios
- All test phases completed successfully with acceptable response times under load
- Application maintained stability even during stress testing phase

Areas for Improvement

- Consider caching strategies to further reduce response times during peak loads
- Implement connection pooling to minimize timeout errors during high concurrency
- Monitor and optimize database queries for better performance under sustained load
- Add horizontal scaling capabilities to handle traffic spikes more effectively

Critical Issues

- No critical issues detected - application performed within acceptable parameters

Detailed Statistics

HTTP 200 Responses	Timeout Errors	Connection Errors

13,050

150

150

Successful Virtual Users

13,050

Failed Virtual Users

300

Average Request Rate

25 req/s

Generated by Artillery Load Testing Framework
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