



Instytut Techniki Budowlanej

FIRE RESEARCH DEPARTMENT



MINI GUIDE TO FIRE TESTING

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TESTING PROCEDURE ORDER



No.	Responsible	Description
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TEST PROGRAM PREPARATION

1.	Client	application for laboratory test
2.	Client	intended use of product and field of application
3.	Client	purpose of testing declaration

AGREEMENT AND TEST SPECIMEN PREPARATION

1.	ITB	quotation and test schedule
2.	ITB & Client	agreement and advance payment
3.	Client	test specimen documentation
4.	ITB	sampling (if necessary)
5.	ITB	furnace frame provision
6.	Client	supporting construction preparation (can be ordered in ITB for additional fee)
7.	Client	test specimen preparation
8.	ITB	test specimen conditioning
9.	ITB	instrumentation application

TEST AND TEST REPORT

1.	ITB	carrying out the fire test
2.	Client	disposal of the test specimen (can be ordered in ITB for additional fee)
3.	ITB & Client	test results overview
4.	Client	final payment
5.	ITB & Client	test report and classification drafts preparation
6.	ITB	test report delivery
7.	ITB	assessment and classification delivery

FIRE TESTING STANDARDS

Standard	Title
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FIRE RESISTANCE TESTS

PN-EN 1363-1	General requirements
PN-EN 1363-2	Alternative and additional procedures

FIRE RESISTANCE TESTS FOR NON-LOADBEARING ELEMENTS

PN-EN 1364-1	Walls
PN-EN 1364-2	Ceilings
PN-EN 1364-3	Curtain walling – Full configuration
PN-EN 1364-4	Curtain walling – Part configuration

FIRE RESISTANCE TESTS FOR LOADBEARING ELEMENTS

PN-EN 1365-1	Walls
PN-EN 1365-2	Floors and roofs
PN-EN 1365-3	Beams
PN-EN 1365-4	Columns
PN-EN 1365-5	Balconies and walkways
PN-EN 1365-6	Stairs

FIRE RESISTANCE TESTS FOR SERVICE INSTALLATIONS

PN-EN 1366-1	Ventilation ducts
PN-EN 1366-2	Fire dampers
PN-EN 1366-3	Penetration seals
PN-EN 1366-4	Linear joint seals
PN-EN 1366-5	Service ducts and shafts
PN-EN 1366-6	Raised access and hollow core floors
PN-EN 1366-7	Conveyor systems and their closures
PN-EN 1366-8	Smoke extraction ducts
PN-EN 1366-9	Single compartment smoke extraction ducts
PN-EN 1366-10	Smoke control dampers

Standard

Title

FIRE RESISTANCE AND SMOKE CONTROL TESTS FOR DOOR AND SHUTTER ASSEMBLIES, OPENABLE WINDOWS AND ELEMENTS OF BUILDING HARDWARE

PN-EN 1634-1	Fire resistance test for door and shutter assemblies and openable windows
PN-EN 1634-2	Fire resistance characterisation test for elements of building hardware
PN-EN 1634-3	Smoke control test for door and shutter assemblies

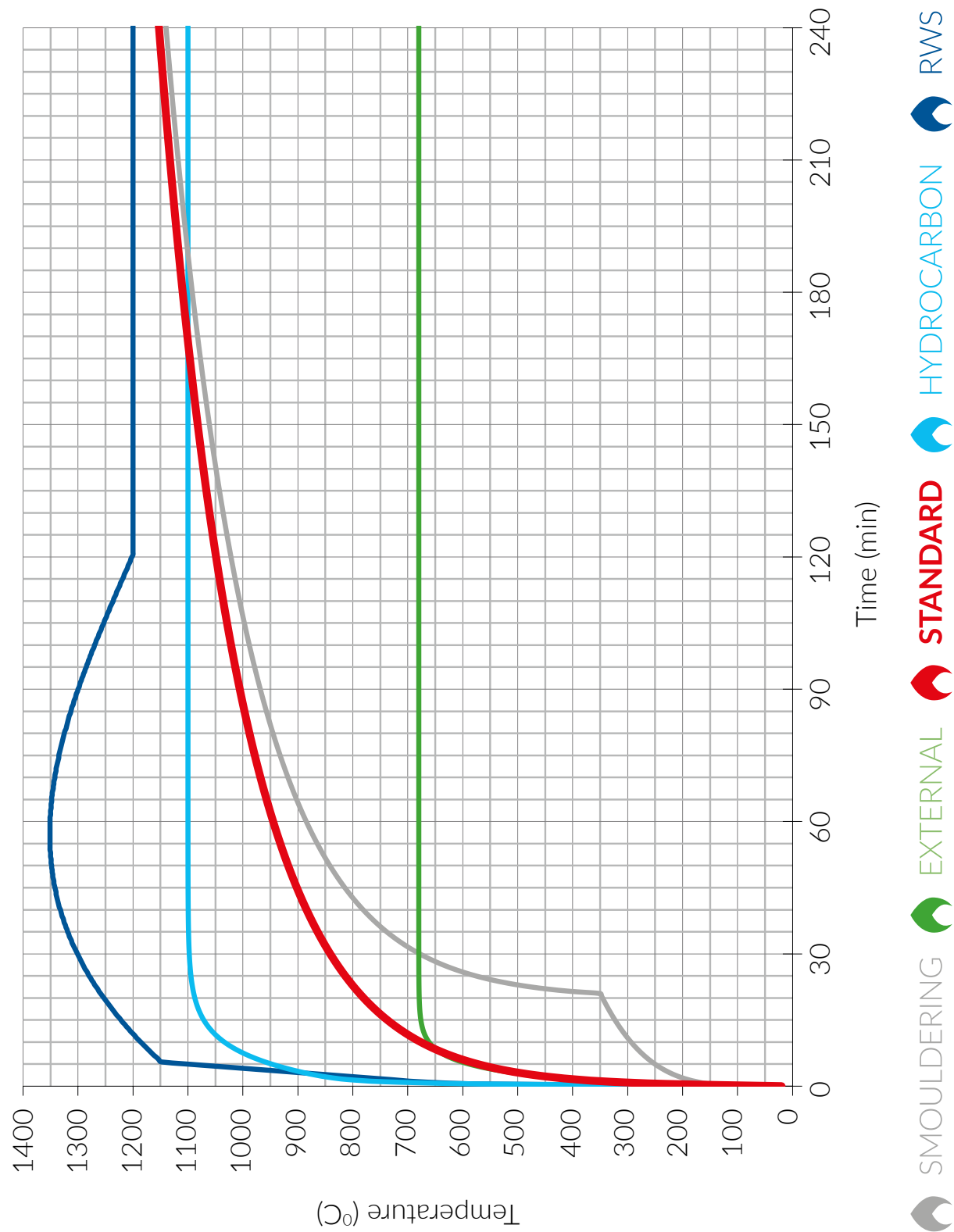
TEST METHODS FOR DETERMINING THE CONTRIBUTION TO THE FIRE RESISTANCE OF STRUCTURAL MEMBERS

PN-EN 13381-1	Horizontal protective membranes
PN-EN 13381-2	Vertical protective membranes
PN-EN 13381-3	Applied protection to concrete members
PN-EN 13381-4	Applied passive protection products to steel members
PN-EN 13381-5	Applied protection to concrete/profiled sheet steel composite member
PN-EN 13381-6	Applied protection to concrete filled hollow steel columns
PN-ENV 13381-7	Applied protection to timber members
PN-EN 13381-8	Applied reactive protection to steel members
PN-EN 13381-9	Applied fire protection systems to steel beams with web openings
prEN 13381-10	Applied protection to solid steel bar in tension

FIRE CLASSIFICATION OF CONSTRUCTION PRODUCTS AND BUILDING ELEMENTS

PN-EN 13501-1	Classification using test data from reaction to fire tests
PN-EN 13501-2	Classification using data from fire resistance tests, excluding ventilation services
PN-EN 13501-3	Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers
PN-EN 13501-4	Classification using data from fire resistance tests on components of smoke control systems
PN-EN 13501-5	Classification using data from external fire exposure to roofs tests
PN-EN 13501-6	Classification using data from reaction to fire tests on electric cables

HEATING CURVES



R – LOADBEARING CAPACITY

- 🔥 deflection and deflection rate of beams, floors and roofs
- 🔥 contraction and contraction rate of columns and walls
- 🔥 collapse of the element



E – INTEGRITY

- 🔥 sustained flaming on the unexposed side
- 🔥 ignition of cotton pad
- 🔥 cracks or opening in excess of given dimensions



I – THERMAL INSULATION

- 🔥 mean temperature rise on the unexposed side higher than 140 K
- 🔥 maximum temperature rise on the unexposed side higher than 180 K



FURNACES FOR FIRE TESTING

SPARK (2,7 MW) 3,7 M X 3,7 M (vertical furnace)

- 🔥 non-loadbearing walls
- 🔥 doors, shutter assemblies and openable windows
- 🔥 glazing systems
- 🔥 service installations
- 🔥 fire protection systems in small scale



ARDOR (5,7 MW) 5,0 M X 4,5 M (horizontal-vertical furnace)

- 🔥 SPARK furnace - testing of large elements
- 🔥 glazing in large scale
- 🔥 possibility to test vertical and horizontal elements at the same time



PHOENIX (14,8 MW) 10,0 M X 7,0 M (vertical furnace)

- 🔥 SPARK furnace - testing of very large elements
- 🔥 high walls
- 🔥 loaded elements

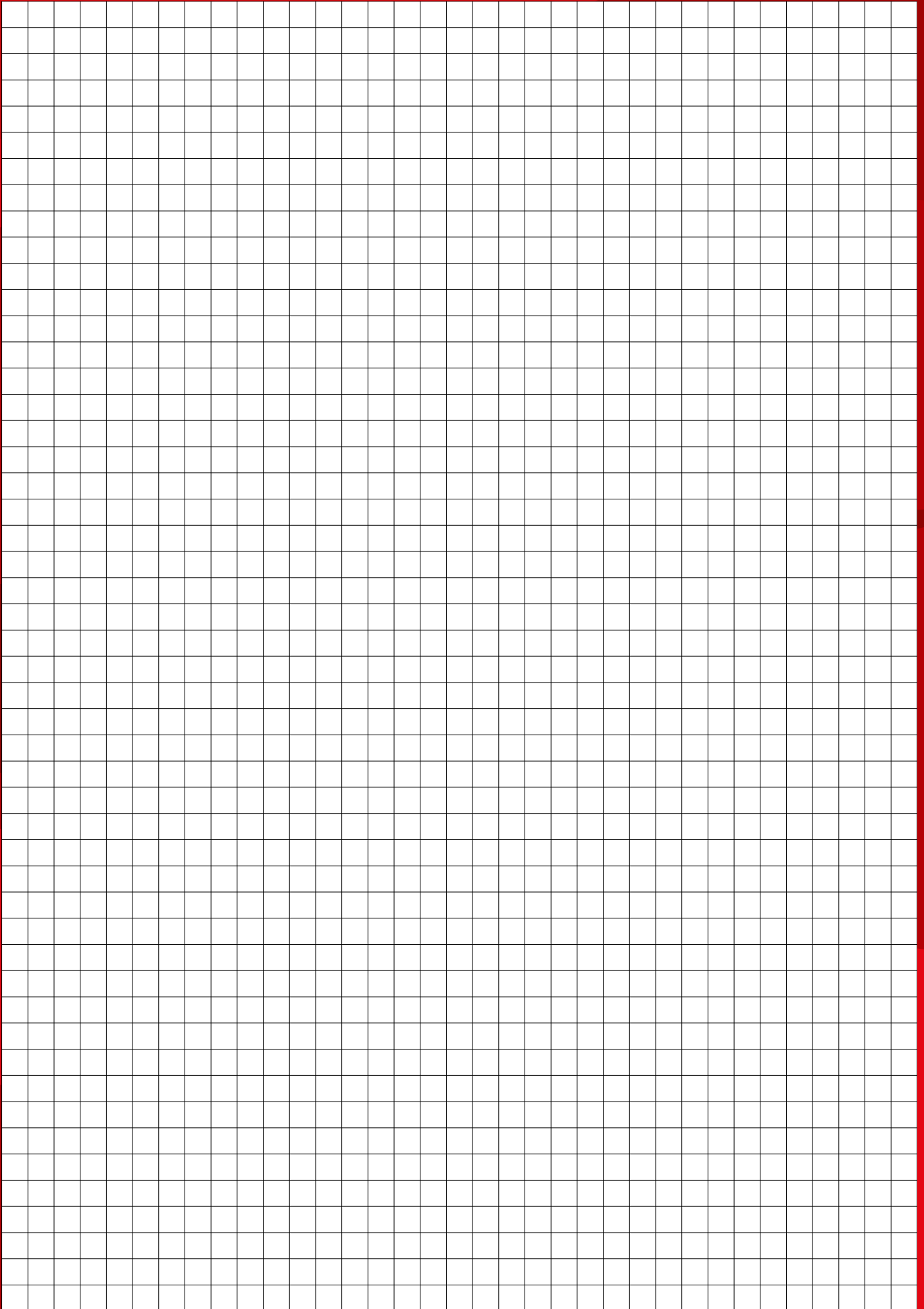


CHIMERA (15,4 MW) 4,3 M X 3,3 M (3-chamber horizontal furnace)

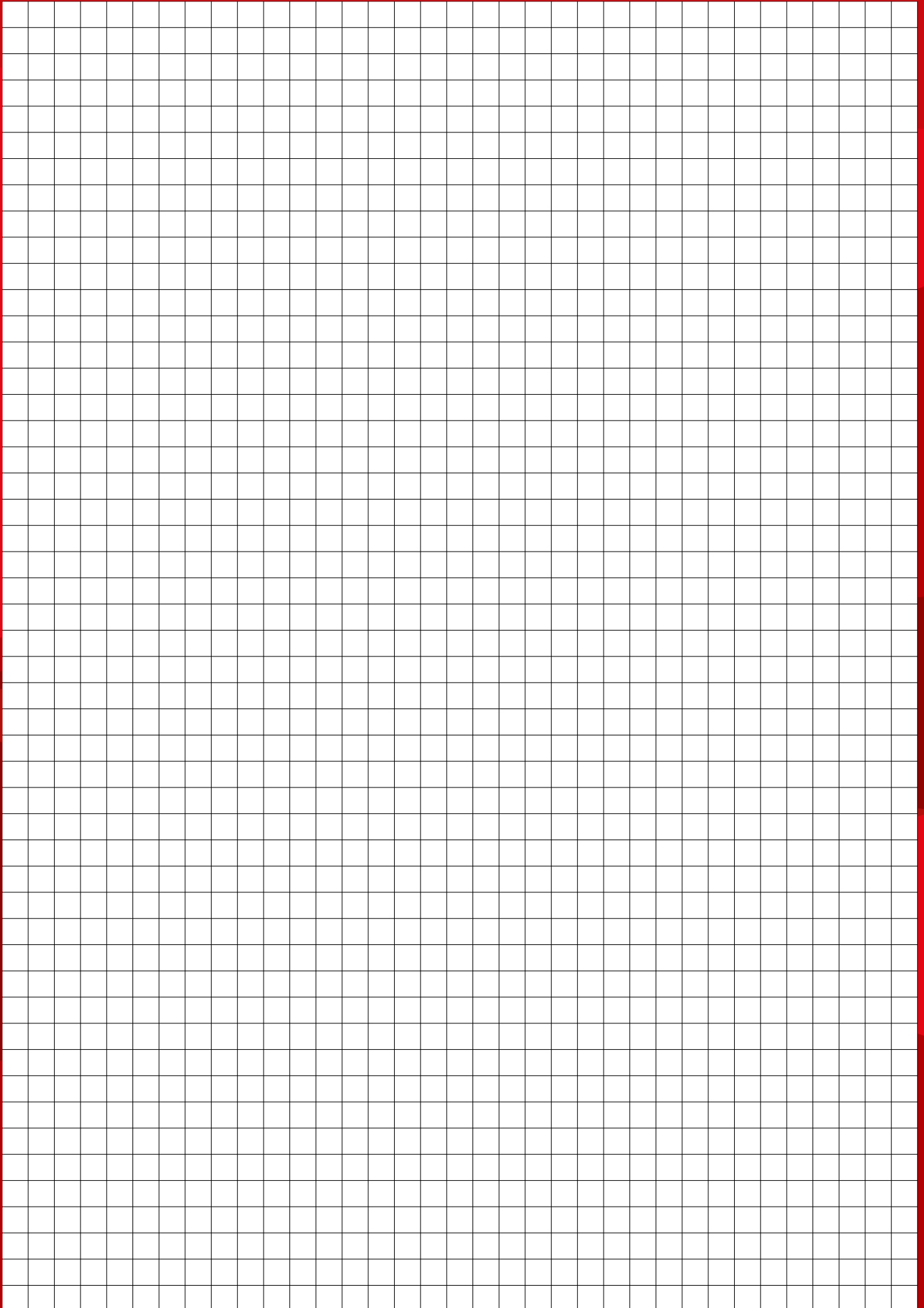
- 🔥 loadbearing elements: floors, beams, columns, walls, balconies
- 🔥 tunnels (RWS fire curve)
- 🔥 ventilation systems
- 🔥 penetration seals
- 🔥 fire protection systems
- 🔥 possibility to join chambers and test elements up to 4,3 m x 11,5 m



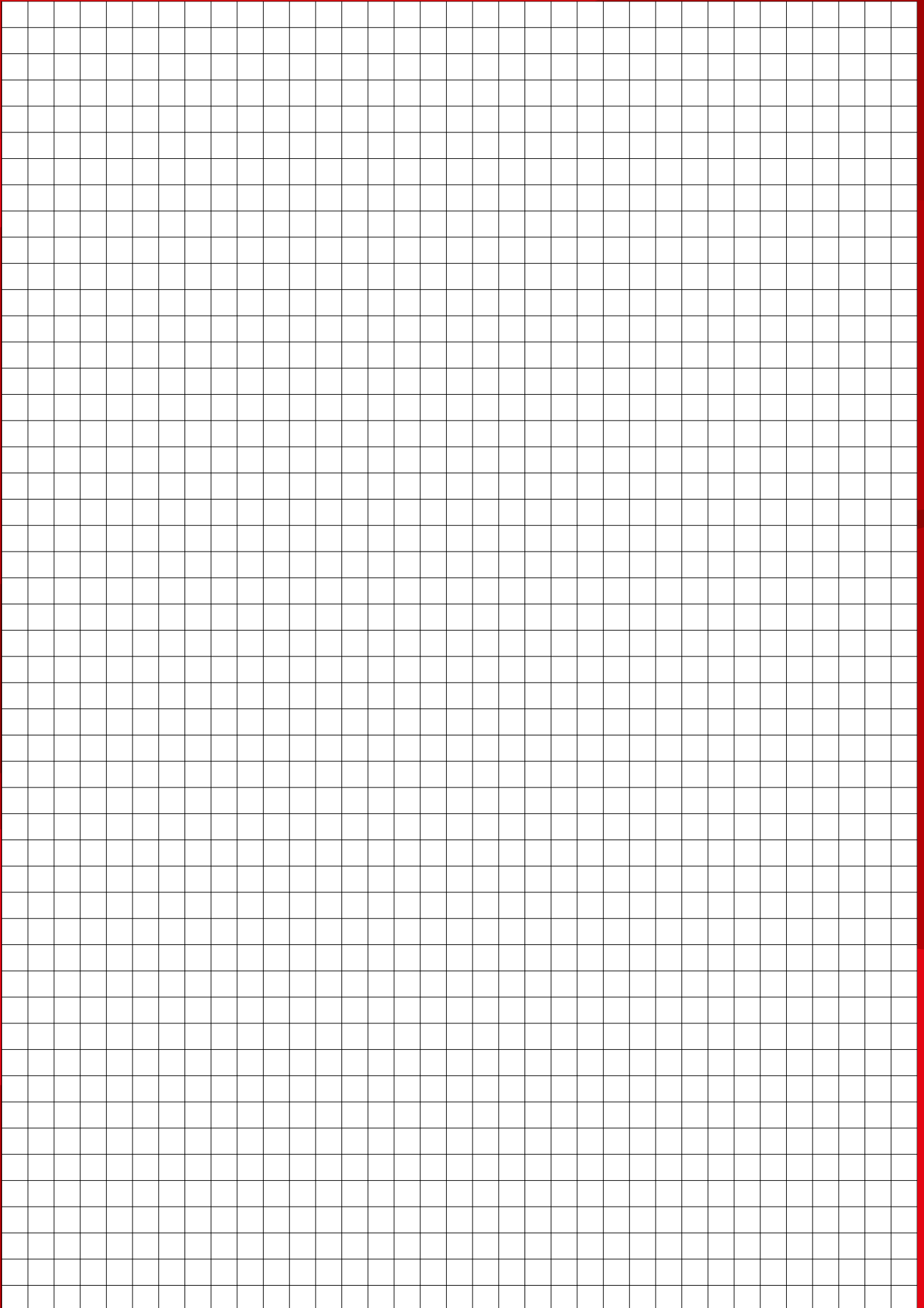
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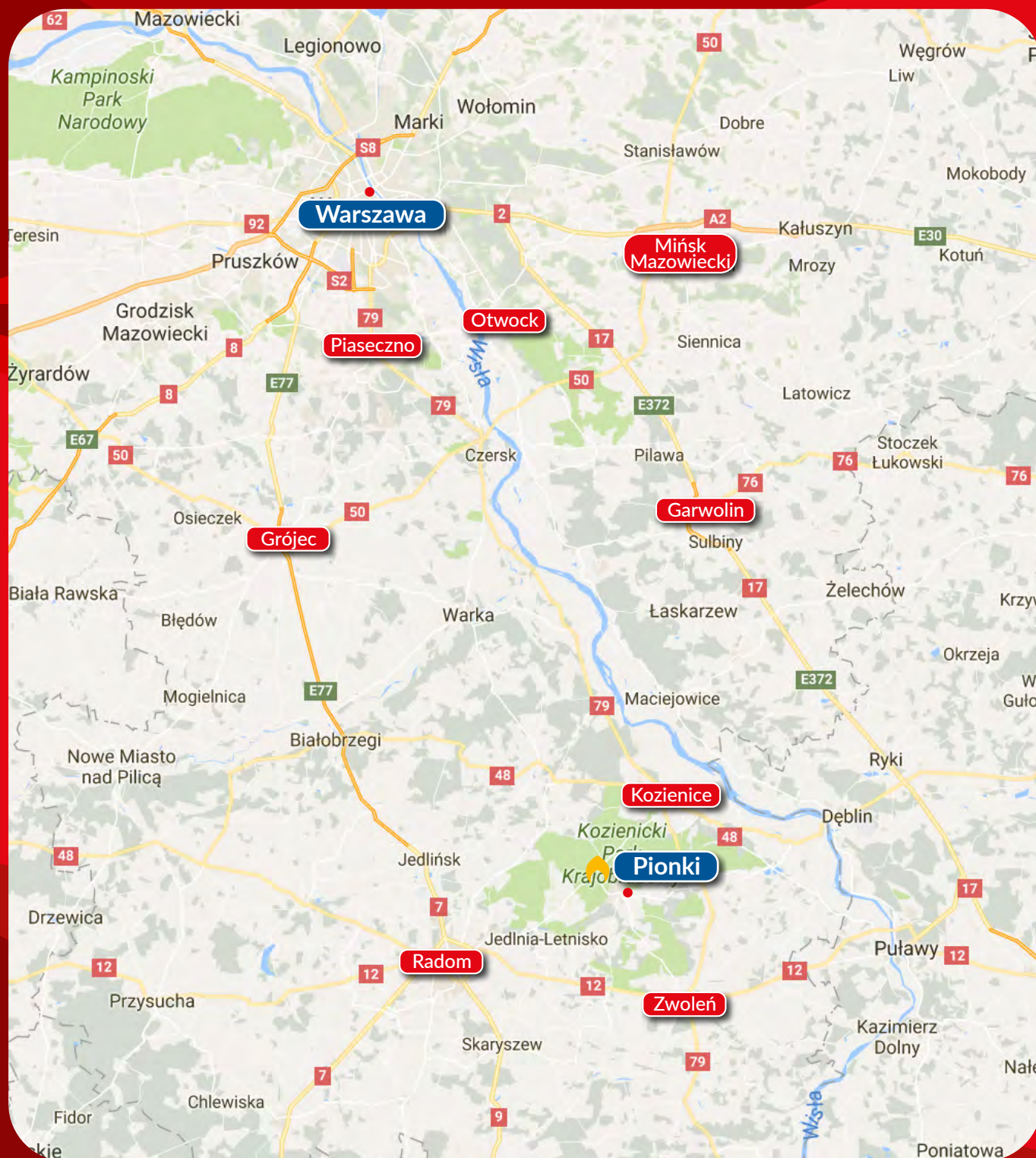


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