Designed to help engineers, specifiers, contractors, and facility teams confidently navigate hazardous location lighting requirements across upstream, midstream, and downstream Oil & Gas environments. From wellpads and compressor stations to refineries and marine terminals, this guide simplifies fixture selection by highlighting the classifications, environmental conditions, and application requirements most encountered in the field.

5 QUESTIONS TO ANSWER BEFORE YOU SPEC

Most hazardous location lighting issues trace back to incorrect classification assumptions, environmental exposure conditions, or mounting requirements that were not fully validated early in design. Before selecting any fixture, confirm these five critical factors.

1
Class
Determine whether the application is Class I Div 1, Class I Div 2, Zone-rated, or non-classified. Final classification confirmed by AHJ.

2
T-Code
Verify required T-Code based on the site's hazardous materials and auto-ignition temperatures. T3 is common across Oil & Gas.

3
Exposure
Confirm ingress protection for washdown, flooding, dust, and mount height. IP66 standard, IP67/IP68 for harsher environments.

4
Ambient
Match fixture performance to worst-case operating temperatures. Cold-start matters in northern upstream and outdoor applications.

5
Mounting
Confirm fixture mounting type: pole, yoke, pendant, surface, or stanchion. Consider accessibility and maintenance access.

OPERATING SEGMENTS

Hazardous location requirements vary significantly across upstream, midstream, and downstream operations. The environments below represent common operating conditions and typical lighting considerations.

01 HAZLOC FIT

UPSTREAM | Well pads, drilling, separators, vapor recovery, lease facilities.
Class I Div 2 typical. AHJ to confirm Div 1 at vents, vapor discharge, and drains.
ZLM (high mast) · AR (flood) · BL (linear) · EXC at Div 1 points

02 HAZLOC FIT

MIDSTREAM | Compressor stations, pump stations, pipe racks, pipelines.
Class I Div 2 / Zone 2 at units. AHJ to confirm Div 1 at vents.
MR (low/mid bay) · XR (high output) · BL (linear) · EXC at Div 1 points

03 HAZLOC FIT

DOWNSTREAM | Refineries, tank farms, marine terminals, chemical processing.
Class I Div 2 / Zone 2 at process. AHJ to confirm Div 1 at vents and drains.
MR / XR (process) · AR (flood) · BL (linear) · EXC at Div 1 points

Classification Reference

Classification boundaries can vary by facility layout, ventilation conditions, process equipment, and AHJ interpretation. Areas near vents, drains, vapor recovery systems, and separators often require additional review during final project approval.

01 / CLASSIFICATION

NEC / CEC	IEC	Where it lives	Nemalux fit
Class I Div 1	Zone 0 / Zone 1	Tank vents, vapor recovery discharge, separator drains, sumps, around open process.	EXC Series only
Class I Div 2	Zone 2	Adjacent to process. Pipe racks. Partially enclosed petroleum facilities. Control buildings near process.	MR · XR · AR · BL · NL · JR

02 / TEMPERATURE CLASS (T-CODE)

T-Code	Max surface	Common in Oil & Gas
T2	572°F / 300°C	Hydrogen, gasoline.
T3	392°F / 200°C	Most common. Propane, diesel, jet fuel.
T4	275°F / 135°C	Ethyl ether and similar. Nemalux MR carries T4.
T5 / T6	212°F+ / 100°C+	Specialty. Verify with application engineering.

03 / INGRESS PROTECTION (NEMALUX HAZARDOUS LOCATION)

Rating	What it means	Nemalux fixtures
IP66	Dust-tight. Powerful water jets.	EXC, BL standard
IP66/67	Adds temporary immersion.	MR standard
IP68	Permanent submersion up to 25 ft.	MR-EN, BL-EN encapsulated variants

GOOD TO KNOW: Final hazardous location classifications may shift after AHJ review, particularly near vents, drains, separators, and vapor recovery systems. Early coordination with engineering teams and the AHJ can help avoid fixture substitutions, redesigns, procurement delays, and change orders later in the project cycle.

Fixture Selection By Application

The applications below represent common lighting scenarios across upstream, midstream, and downstream Oil & Gas facilities. Recommended fixture families are aligned to typical operating conditions and hazardous classifications. Final specifications should be validated by the AHJ and project engineering team. Yellow cells require application engineering review.

Application	Classification	Verified Cooper Lighting Solutions fit
UPSTREAM		
Drilling crown and lease	Class I Div 2	Nemalux ZLM (high-mast modular)
Wellpad and separator deck	Div 2 deck. Div 1 at drains (AHJ).	Nemalux BL, AR, MR. EXC at Div 1 points.
Tank vents and vapor recovery	Class I Div 1 (AHJ confirms)	Nemalux EXC (only Div 1 option)
MIDSTREAM		
Compressor stations	Div 2 unit. Div 1 at vents (AHJ).	Nemalux MR, XR. EXC at Div 1 points.
Pipe racks and pipeways	Class I Div 2 / Zone 2	Nemalux BL (linear), MR, NL
Pump stations and terminals	Div 2. Div 1 at points (AHJ).	Nemalux AR, XR, JR. EXC at Div 1 points.
DOWNSTREAM		
Refining process units	Class I Div 2 / Zone 2	Nemalux MR (low/mid bay), XR (high output)
Tank farms and loading racks	Div 2 floor. Div 1 at vents (AHJ).	Nemalux AR (flood), XR. EXC at vents.
Control rooms and operations	Non-rated	Metalux UHBS2 (NEMA 4X, IP65 high bay)
Other indoor non-rated	Non-rated	Metalux Elevate, Navion (verify fit per project)
Perimeter and access roads	Non-rated	Streetworks portfolio (verify specific model)
Egress and emergency	Per NFPA 101	Sure-Lites (verify specific product family)

NEMALUX PRODUCT KEY

Each Nemalux fixture family addresses specific operational challenges across hazardous classification, environmental exposure, lumen output, and long-term reliability in demanding industrial environments.

EXC	Only Div 1 option. 1,200 lm.	**MR**	Low/mid bay. 3k-6k lm.	**XR**	High output. 8k-20k lm.	**AR**	Floodlight. 10k-48k lm.
BL	Linear vapor-tight. 2.5k-4.4k lm.	**NL**	Durable linear. 4k-14k lm.	**JR**	Compact. 2k-5k lm.	**ZLM**	High-mast modular. 28k-56k lm.

COMMON MISTAKES TO AVOID

1 | Over-Specifying Div 1 Fixtures. Applying Div 1 fixtures where AHJ confirms Div 2 conditions is the most common and costly spec mistake. Many petroleum facility applications qualify for Class I Div 2. EXC is the only Div 1 option in the Nemalux portfolio.

2 | Ignoring Worst-Case Ambient Conditions. Verify fixture performance against the site's lowest and highest operating temperatures. Cold-start matters in upstream Canada, Alaska, and exposed processing. BL: down to -50°C. MR: down to -40°C.

3 | Underestimating Environmental Exposure. Flooding, washdown, standing water, and low fixture mounting can require IP67 or IP68 over IP66. IP66 is sufficient at most pipe-rack and process-unit heights.