# Episode Book

EPISODE #5955

# Work Lights: Lumens, Lux, and the Specs That Matter

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## SYNOPSIS

If you've ever bought a work light on its lumen rating and been disappointed, you're not alone — lumens measure light leaving the fixture, not light landing on your work surface. This episode works through the specs that actually predict whether a light will do the job: lux and illuminance at working distance, beam angle, runtime per setting, thermal step-down, CRI, colour temperature, and the IP and IK durability codes most listings quietly omit. Along the way: why wattage tells you almost nothing, why a quoted beam distance is a warning label, and how to tell a flood from a spotlight using nothing but a product photo. If you've ever stood in an aisle staring at four form factors under one label, this is the buyer's guide that sorts them out.

# TRANSCRIPT



**Corn**

Quick question. If you were buying a work light tomorrow, what number would you look at first?



**Herman**

Lumens. Everyone looks at lumens.



**Corn**

Right. And that's the one number almost nobody in this category can tell you whether it works.



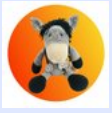
**Herman**

That's a very good way of putting it, and it's exactly what Daniel is asking about. He wrote in about work lights. His example is the crane-shaped thing with the magnetic base you stick to a metal surface, and he uses his on the car because there's a metal slat running overhead in the car park and the ambient lighting there is useless. And then he says the same term covers the heavy freestanding stuff on construction sites, the ones on tripod bases.



**Corn**

And he wants the buyer's guide done the way this show does them. Past the marketing, into the specs. What counts as a work light, what the specs actually mean, how the power sources compare, what the mounts buy you, how to match a light to a task, and what you really get as you spend more. He's fine with broad price points, he doesn't want a product roundup.



**Herman**

He also flagged something he thinks is common across the whole category. Even the battery ones tend to come with a quarter-inch mount for mounting if you need it.



**Corn**

We'll come back to that quarter-inch mount. Hilbert has opinions about it.



**Herman**

Does he.



**Corn**

He does. Later.



**Herman**

And the first thing to say is that the category is much wider than the name suggests.



**Corn**

It's also the last light in the house we haven't done. Universal headlamp, desk task lighting, flashlights. This is the one that lights the whole job instead of the page.



**Herman**

So define it by what it does rather than what it looks like. Portable flood or area lighting, intended to illuminate a work surface. That spans mains and battery power, and it spans everything from a pocket-sized COB bar to a thirty-six-thousand-lumen tripod tower. Four form factors, really. Compact magnetic and hook task lights, the COB bars, five hundred to two thousand lumens. Handheld or pivoting spotlights. Area and flood lights on a stand. And then the heavy multi-head tripod towers, fifteen to thirty-six thousand lumens.



**Corn**

The tool shop near us shelves all four in the same aisle. One label.



**Herman**

And they're not substitutes for each other. That's the point. RBE sorts the whole category by weight into lights you hold and lights you place, and the two don't do the same job. That single distinction explains most bad purchases in this category.



**Corn**

So someone buys a handheld, expects a room, and concludes work lights are rubbish.



**Herman**

Or buys a tower for a job that needed a bar on a magnet. And the commonalities hold across the whole span. It's portable flood lighting for a work surface, and even the battery units usually carry that quarter-inch mount so you can put them on a stand if you want to.



**Corn**

And that gets us to the thesis.



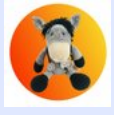
**Herman**

Work lights are sold on lumens. Lumens is the easiest spec in the category to publish and the least informative on its own. Everything after this is the argument for that.



**Corn**

So if lumens is the least informative spec in the category, what should you be reading instead?



**Herman**

Lux. And the difference isn't pedantry, it's the whole thing. Lumens measure light leaving the fixture. Lux measures light landing on the surface. Those are two different measurements of two different things, and only one of them describes the job.



**Corn**

Give me the failure case.



**Herman**

Take a three-thousand-lumen lamp and spread it over a hundred square metres. That surface cannot exceed thirty lux. That's just short of OSHA's three foot-candle minimum, and that's before any optical loss, before anything the fixture itself eats. The lamp is doing exactly what it says on the box and the floor is still too dark to work on.



**Corn**

And work light pages almost never publish lux.



**Herman**

Almost never. You get the chip's best-case number and a photo of it looking bright in a dark room.



**Corn**

Which is a very good way to sell a light.



**Herman**

It's a very good way to sell a light. It's a terrible way to buy one. One foot-candle is one lumen per square foot, and there are about ten point seven lux to a foot-candle, so if you want to check a listing against a real requirement you can do the arithmetic yourself. The trouble is there's usually nothing to check it against.



**Corn**

So what does a job actually require?



**Herman**

OSHA's table for construction lighting is the reference people use. Five foot-candles, so about fifty-four lux, for general construction area lighting. Three foot-candles, roughly thirty-two lux, for excavation, accessways, loading platforms, field maintenance. Ten foot-candles for shops. Thirty for offices. Those are minimums, they're written for safety rather than for seeing what you're doing, but they're a floor.



**Corn**

And if you don't know what your surface needs, you can't tell whether the lamp you bought will hit it.



**Herman**

You can't. And here's what happens when you go looking for it. Ask a supplier for the beam pattern and the illuminance at your working distance. That's the question. If they can only quote lumens, they're describing the LED, not the lamp.



**Corn**

That's from the Tough Lighting piece.



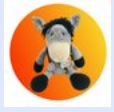
**Herman**

It is, and it's the best line in the whole category. The LED is the part. The lamp is the product.



**Corn**

Wattage next. Because that's the other number people trust.



**Herman**

Wattage doesn't predict lumens at all. Tough Lighting's own catalogue has fifty-five lamps rated at forty watts, and the published output across those fifty-five runs from twenty-four hundred to forty-eight hundred lumens. Same wattage. Double the light.



**Corn**

Fifty-five lamps. That's not a rounding error, that's the whole catalogue.



**Herman**

That's one manufacturer's own range. And the efficacy spread inside it runs from roughly thirty-seven lumens per watt to a hundred and sixty. So the big number on the front of the box is partly a measure of how good the emitters are and partly a measure of how the fixture was designed, and you can't tell those apart from the box.



**Corn**

So a bigger lumen number can be the worse buy.



**Herman**

It can be, and for a reason that has nothing to do with the emitters. Get back to beam angle in a minute. First, runtime, because that's the missing half of the spec.



**Corn**

The same battery at a different setting.



**Herman**

A three-thousand-lumen light might drain a five amp-hour pack in three to four hours on high. Run it low and the same pack goes the whole day. Lumens without runtime is half a spec.



**Corn**

So what's the red flag?



**Herman**

A lumen figure with no runtime anywhere on the page. That tells you everything about which number they want you to look at.



**Corn**

And there's something worse than that.



**Herman**

Thermal step-down. High-output LEDs dim as the fixture warms up, because the emitters are being protected from themselves. So the peak number may only be available for the first few minutes of the run, and then it settles to something lower. That's almost never mentioned on a product page. You buy a light advertised at its cold peak, and ten minutes in it's a different light.



**Corn**

How much does it settle by?



**Herman**

Depends entirely on the thermal design of the housing, and almost nobody publishes the curve, so the honest answer is you don't know until you've run it for an hour. What you can say is that a fixture with a big metal body and visible fins is doing more about it than a sealed plastic bar. Physics leaves clues.



**Corn**

So the headline number is the first four minutes.



**Herman**

It's the first four minutes. Which is fine if you need four minutes of light, and a problem if you need four hours.



**Corn**

Back to the beam angle, then. Because that's where you said the worse buy lives.



**Herman**

This is the spec that decides whether the light is useful at all, and the one least likely to be printed. Narrow beam, ten to thirty degrees, throws far. That's for spotting, for detail. Wide beam, thirty-six degrees and up, floods an area. And very few work lights state the angle, so you're usually judging by the housing instead.



**Corn**

What are you looking at on the housing?



**Herman**

Whether the emitters sit behind a flat diffuser or sit in reflectors. Flat diffuser, the light spreads. Reflectors, the light throws. That's the tell you can see in a photograph without a single number being published.



**Corn**

And one more, which I have learned to treat as a warning label.



**Herman**

A quoted beam distance is a reliable sign you're looking at a spotlight. If they're telling you how far it shines, they're telling you what it is.



**Corn**

And buying a spotlight to light a bench is the most common mistake in the category.



### Herman

It's the most common mistake, and it's worth saying why, because it isn't obvious. A two-thousand-lumen flood is useless for spotting a wire inside a stud bay. Two thousand lumens going everywhere and you still can't see into the wall cavity. And a tight spot is useless for lighting a whole room. Same power, same price bracket, opposite jobs. You can spend two hundred dollars on the wrong one of those and be worse off than the person who spent twenty.



### Corn

Which connects to something we've said on here about lighting generally. Not an accessory.



### Herman

It's upstream of everything. Lighting is the thing the eye, the camera and the inspection tool all sit downstream of. If the light is wrong you're not having a bad time, you're looking at the wrong thing and not knowing it.



### Corn

Quality of light next. Colour.



### Herman

CRI and colour temperature. CRI is how faithfully the light renders colour against a reference, and it matters more in trade work than people expect. Ninety and above for finish work. Matching wire colours, matching paint, matching stain. Cheap high-output LEDs commonly sit at seventy to eighty, and colours look washed out under them. Job-site lights typically run eighty to ninety-five and up.



### Corn

Matching wire colours is not a vanity requirement.



**Herman**

It's not. If you can't tell the brown from the grey you're not doing a colour-coordinated job, you're guessing, and the mains doesn't care how confident you were. Colour temperature is the other half. Most job-site lights sit between four thousand and sixty-five hundred Kelvin, because cooler light reads as brighter to the eye. Three thousand Kelvin warm is easier on the eyes and reduces glare for close work where the lamp is near your face.



**Corn**

And that's a preference rather than a spec.



**Herman**

It's a preference, but it's a real one. If you're working at arm's length with the light six inches from your head, cold light is uncomfortable in a way you'll notice by hour two.



**Corn**

Durability. The letters.



**Herman**

IP rating, IEC 60529. Two digits. The first is solids, zero to six. The second is liquids, zero to nine. IP54 means dust-protected plus splash-resistant and it's the practical minimum for anything outdoors. IP65 means water jets. IP67 means temporary immersion.



**Corn**

And most work light pages carry no IP rating at all.



**Herman**

None. Which is itself information. And there's a second code almost nobody in the consumer end has heard of, the IK impact code. IK07 is two joules, IK09 is ten joules. That's the one that matters when the lamp comes off the top of a ladder, and it's the difference between a dent and a dead light.



**Corn**

So a light with no IP or IK figure could be excellent and it could be a bare circuit board in a plastic shell.



**Herman**

And you can't tell which from the listing. The takeaway that ties all of this together is that knowing which of these specs is missing tells you a lot. An honest listing has the beam angle, the illuminance at working distance, the runtime per setting, the CRI. A page with one big number and a lifestyle photo is telling you what the marketing department had confidence in.



**Corn**

Those are the specs. The other half of the decision is how you power the thing and where you put it.



**Herman**

Power is a workflow question rather than a quality one. That's the frame. Corded, mains, gives you unlimited runtime, no battery cost, lighter units because there's no pack on board, and cheaper per lumen than anything running on cells.



**Corn**

And it's tethered.



**Herman**

It's tethered, which is fine for a fixed bench and all-day work in one location, and useless the moment you want the light where the cord doesn't reach. Cordless gives you placement freedom and uses batteries you may already own, and it's runtime-limited in exactly the way the last segment described.



**Corn**

So the interesting product isn't on either side of that line.



**Herman**

The interesting product is the hybrid. Dual-power. Milwaukee's ROVER 2366-20 runs on an M18 pack or a hundred and twenty volt AC, and Makita's ML005G runs on AC as well as battery. A light that offers both sidesteps the choice entirely. That's the strongest spend-more-get-this argument in the category, and it's not a small feature, it's the whole tension resolved.



**Corn**

What does it cost?



**Herman**

The ROVER is around a hundred and fifty dollars, four thousand lumens, about six hours on high and twelve on low on a five amp-hour pack.



**Corn**

Six hours on high at four thousand lumens.



**Herman**

Which tells you the battery platform matters more here than on a drill. If you're already in a system, DeWalt twenty volt, Milwaukee M18, Makita eighteen volt LXT, all three of them sell lights that run on packs you own, and that's a large part of the real price. The bare tool version, marked with a B or a Z, matters more than usual on the high-output lights, because a large continuous draw needs a large pack. A little two amp-hour battery that's fine in a drill will run a four-thousand-lumen flood for about forty minutes and then be flat.



**Corn**

There's a solar one at the edge of this too.



**Herman**

Feit Electric sells a three-thousand-lumen rechargeable work light with a tripod, three detachable magnetic bars, USB-C and solar charging. It's a genuine category member, it's just not the shape most people picture. Good for a shed or a site with no power, less good if you need it now and the sun isn't out.



**Corn**

Mounting next. Because this is where the light either earns its place in the kit or stays in the trailer.



**Herman**

Mounting is where the category lives or dies practically. Magnetic bases grip steel beams, tool boxes, truck beds, exactly like Daniel's car park slat. Good ones have a rubber boot so the magnet doesn't scratch the paint. The limitation is that some compact lights aren't self-standing at all, they have to attach to steel, and if there's no steel near the job you've got a problem.



**Corn**

So what do you do?



**Herman**

You keep a steel plate in the kit. That's the workaround, and it's a cheap one.



**Corn**

I want to come back to the quarter-inch mount, because Daniel mentioned it as a commonality and I don't think it's as universal as he thinks.



**Herman**

It's the standard quarter inch twenty camera thread, the one on every tripod head, and it shows up on specific models rather than being a rule for the category. Saniso's FLS20-20W has a hook and a tripod mount. Their telescopic tripod runs from one point one to one point eight metres and takes forty kilos, and it mounts their flood lights directly. That's confirmed on those models. Nobody should assume every battery work light has one.



**Corn**

So check before you buy.



**Herman**

Check the product page, and if it has one you get the option of putting the light on a stand, which matters because a stand takes the light off the floor and the floor is where it gets kicked.



**Corn**

Clamps.



**Herman**

Milwaukee's clamping gear is the best example of this in the category. The ROVER mounting flood light has two magnets plus a two inch spring-loaded clamp, for piping, lumber, cabinetry. The clamping version adds a three inch multi-material clamp for one to three inch outside-diameter pipes and steel studs. That's the difference between a light you use and a light you own. A light that mounts in five seconds gets used. One that needs a stand and a cord gets left in the trailer.



**Corn**

Tripod towers, then. The construction-site end.



### Herman

Most professional models have dual or triple independently adjustable heads, telescoping stands that extend from sixty to eighty-eight inches, and three hundred and sixty degree rotation. LUTEC's 6290Pro does fifteen thousand lumens at a hundred and five watts. There's a thirty-six-thousand-lumen unit from RIUVAO, six hundred and seventy-two LEDs, IP67, twelve pounds, sixteen foot cord. Those are site lights, they light an entire floor, and they are absolutely the wrong thing for a garage.



### Corn

This is where the task-matching guide matters.



### Herman

Saniso publishes a rough one and it's the most useful table in the category. Close work, a meter cupboard, under a sink, two hundred and fifty to six hundred and fifty lumens. A corner or a small room, one to two thousand. A whole room, tiling, plastering, painting, four thousand plus, and preferably two lamps rather than one. Large spaces, sheds, outdoors, four to nine thousand on a tripod.



### Corn

Two lamps rather than one brighter one.



### Herman

Because of shadows, and that's placement rather than output. Light from two sides at about forty-five degrees and the shadows cancel. One light from one side and everything behind a pipe is invisible. Above eye level, behind your shoulder rather than behind your work, so you're not looking down your own beam.



### Corn

And the raking trick.



### Herman

Raking light. Strike a surface at a low angle and every bump shows up. That's how you catch tile lippage and drywall ridges before you paint them, and it's free. It's just where you put a lamp you already own.



### Corn

The counterintuitive buying rule, then.



### Herman

A very dim light is not a cheap version of a bright one. It's a different and much less useful object. If the budget is tight, buy a good handheld rather than a cheap area light. And more isn't always better either. A fifteen-thousand-lumen flood in a small workshop bounces off every surface and creates more glare than useful light. You can make a space worse by over-lighting it.



### Corn

Prices. What does someone actually pay?



### Herman

Two ends of the cheap tier. innofox does a magnetic two-pack at around twenty-four dollars, fifteen hundred lumens. VEVOR's dual-head fifteen-thousand-lumen tripod is around fifty dollars. So the same fifty dollars buys you either a well-made small light or a big number with no beam angle, no CRI and no runtime published anywhere. That's the fork in the road.



### Corn

And past that.



### Herman

DeWalt's DCL182 USB-C task light is seventy-eight dollars, a thousand lumens. Milwaukee's ROVER 2366-20, the dual-power one, is around a hundred and forty-nine, four thousand lumens, and it's backed with a lifetime LED warranty on top of the twenty-five to fifty thousand hour LED lifespan every manufacturer quotes. DeWalt's DCL079B tripod is two hundred and forty-nine, three thousand lumens, seven foot reach, sixteen pounds, and about three and a half hours on high from a six amp-hour pack.



### Corn

Ten times the price of the VEVOR and a fifth of the output.



### Herman

It might well be the better purchase, because it's rated, it's serviceable, it has a real runtime figure and it's the one that'll still be working in five years. The mid-range is where most people should land. Handhelds at a thousand to two thousand lumens with multiple brightness levels cover almost all home and vehicle work. That tier is the whole answer for a lot of people, and the category runs from under fifty dollars to over three hundred for a single compact unit.



### Corn

What's the thing everyone gets wrong about the timings on these?



### Hilbert

They're always shorter than the box says. And the quarter inch mount isn't a work light standard, it's a camera thread, one quarter twenty, and I've got a box of adapters for exactly that reason. I've had that box for years. It's in the garage, second shelf, next to the jar of screws that are all the wrong length, and it has never once been the right adapter without me going through the whole box first.



### Corn

You've been quiet back there.



**Hilbert**

I've been listening. You've both got the lux thing right, that's the whole argument, but you've undersold the magnet. The magnet is the product. The light is what's attached to it.



**Herman**

That's a strong claim.



**Hilbert**

I've got a magnetic work light I've never once put on a tripod. Because the tripod is for people who plan ahead, and I'm not one. It's got a rubber boot over the magnet and I peeled it off in the first week because it kept sliding across a painted surface. My garage door frame has a bare patch on it now, shaped exactly like the magnet. Same size as the light's base. I've never touched that paint up and I don't intend to.



**Herman**

What's the actual workflow?



**Hilbert**

Whatever's ferrous. I carry a steel plate in my jacket pocket for everything else. Not the tool bag. The jacket. So I can put the light on a wooden fence, or a plastic storage box, or, once, on a colleague. He was fine about it. The light stayed on him for the whole job, two hours, because he didn't want to make a fuss.



**Corn**

Two hours.



**Hilbert**

He didn't complain once. I've since bought a second plate, so I can mount two lights on two different people if the job needs it. It hasn't needed it yet. It will.



**Herman**

I'll say this much. You've described the exact failure mode of the marketing spec.



**Hilbert**

Magnets don't have a lumen rating, Herman. That's why nobody puts one on the box.



**Corn**

Right. Well. The specs that decide whether a work light works are the ones almost nobody publishes. Lux, beam angle, CRI, runtime per setting.



**Herman**

That's not an accident at the level of any one manufacturer. It's a market. Lumens sells, lux doesn't, because lumens is one big number and lux depends on your room.



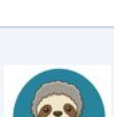
**Corn**

The consumer has to bring the arithmetic the listing won't.



**Herman**

The honest version of where this category goes next is the hybrid. If dual-power becomes standard across the tool platforms, the corded versus cordless tradeoff just disappears, the buying decision gets simpler, and the price floor probably rises with it. Worth watching.



**Corn**

Thanks to Hilbert Flumingtop for producing. For more along these lines, there's episode fifty-seven, From Lawyers in Limousines to Developers in Their PJs; episode three, Safetensors or something else; and episode twenty, Architectural AI. This has been My Weird Prompts.



**Herman**

Send us your own prompt on Telegram at t dot me slash MWP listener bot, and we'll be back soon.

# SOURCES

What the research for this episode read before the script was written. Primary sources first.


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